Five-Year Review Report

Third Five-Year Review

for

F.T. Rose Disposal Pit Superfund Site

Lanesborough, Massachusetts

September 2009

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The United States Environmental Protection Agency

Region 1, New England

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ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CD	Consent Decree
COC	Contaminant of Concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DNAPL	Dense Non-Aqueous Phase Liquid
EPA	U.S. Environmental Protection Agency
FYR	Five Year Review
GAC	Granular Activated Carbon
GE	General Electric Company
GERE	Grant of Environmental Restriction and Easement
GWTP	Groundwater Treatment Plant
MassDCR	Massachusetts Department of Conservation and Recreation
MassDEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
mg/kg	Milligram per Kilogram
MW	Monitoring Well
NAWQC	National Ambient Water Quality Criteria
Nobis	Nobis Engineering, Inc.
NPL	National Priorities List
O&M	Operations and Maintenance
OU	Operable Unit
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
ppb	parts per billion
ppm	parts per million
PRP	Potentially Responsible Party
PCE	Tetrachloroethene
RA	Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Site	F.T. Rose Disposal Pit Superfund Site

ACRONYMS (cont.)

SW	Surface Water
TCE	Trichloroethene
VOC	volatile organic compound

EXECUTIVE SUMMARY

The F. T. Rose Disposal Pit Superfund Site (the Site) is located on Balance Rock Road in Lanesborough, Massachusetts, and is approximately one-half mile from the town of Pittsfield, Massachusetts (Figure 1-1). The property was used for the disposal of waste oils and solvents from General Electric Company (GE) as early as the 1950s and possibly later. The one and one-half acre disposal area occupies the northern section of what was at the time an approximate 12.5-acre residential lot. The disposal area was formerly a trench where waste oils and solvents were dumped. In December 2008 GE purchased the remaining 2.7 acres of the Site and GE now owns the entire Site (approximately 12.5 acres), which includes the former trench disposal area, and the former Rose residence which occupied a small section with frontage along Balance Rock Road (Figure 1-2). GE demolished the Rose residence in July 2009. Polychlorinated biphenyls (PCBs) in soils and groundwater and volatile organic compounds (VOCs) in groundwater are the principal contaminants at the Site.

In September 1988, the U.S. Environmental Protection Agency (EPA) signed a Record of Decision (ROD) for the Site. The selected remedy was a comprehensive approach for Site remediation which included both a source control and a management of migration component, as well as institutional controls:

- Source Control: Excavation and on-site incineration of contaminants consisting of approximately 15,000 cubic yards of contaminated soil and sediment; excavation and incineration of soils to a cleanup concentration of 13 parts per million (ppm) of PCBs to the water table; and limited excavation in the saturated zone to remove the subsurface free product portion of the disposal area. A soil cover to prevent any direct contact with the remaining PCBs in the saturated zone.

- Management of Migration: Active restoration of the shallow overburden aquifer contaminated with VOCs using on-site treatment involving air stripping and carbon adsorption; installation of a bedrock well in the vicinity of the free product area to prohibit migration into the fractured rock; groundwater treatment to reduce contaminant levels to drinking water standards or other appropriate guidelines; and treatment of sediments and surface water in Rose's pond and restoration of the pond to its original wetlands character after remediation.

- Institutional Controls: Implementation of institutional controls to prevent groundwater use and excavation into the saturated zone within the disposal area.

In September 1988, GE entered into a Consent Decree (CD) with EPA to perform the above work. Excavation in the source area portion of the disposal area extended into the saturated zone (below the water table) to remove the subsurface free product portion of the disposal area. For the remaining portion of the disposal area, excavation of contaminated soil was restricted to the unsaturated zone (above the water table). This was due to the impracticability of excavating the entire saturated zone of the disposal area and possible adverse impacts to adjacent wetlands. Approximately 51,200 tons of PCB-contaminated soil were excavated in both the saturated and unsaturated portions of the disposal area and incinerated on site. Since some PCBs remained in the saturated soil layer, a 10 inch soil cover consisting of treated soils that did not exceed 2 ppm for PCBs was placed where PCBs exceeded 13 ppm and it was determined in the ROD that institutional controls would be necessary to prevent excavation in the saturated zone and to prevent the use of groundwater. Pursuant to the Consent Decree, GE further agreed to: 1) no intrusive earthwork activities except for superficial regrading; 2) no off-site trucking of on-site soils; and 3) require approval from EPA and the state prior to any future development of the Site.

The management of migration portion of the remedial action was designed to treat contaminated groundwater located in a shallow aquifer to drinking water standards or other appropriate guidelines. Two trenches were constructed to intercept the plumes of contaminated groundwater. From the collection trenches, contaminated groundwater is pumped to a groundwater treatment facility, where it is treated using a combination of air stripping and carbon adsorption. In addition, sediments from Rose's pond were excavated and treated, and the pond was restored to its original wetland habitat.

The excavation and incineration of soil was initiated in July 1992 and completed in July 1994. Treatment of contaminated groundwater is ongoing. The drafting of a Grant of Environmental Restriction and Easement (GERE) is currently in progress and is expected to be recorded within the next 12 months. The GERE will restrict the use of groundwater, prohibit excavation in the saturated zone, prohibit residential use; day care, educational activity or use; community activity or use; agricultural activity or use; use as a park; or any use that would interfere with the

implementation of the remedy; and require maintenance of the soil cover and approval from EPA and the State prior to site development. In addition, an agreement (see Appendix E) is in place between GE and the Massachusetts Department of Conservation and Recreation (MassDCR) that allows the eastern trench to be located on the adjacent Balance Rock Park property and allows GE access to monitoring and maintain the trench and the monitoring wells also located on Park property. The manhole, ECT-MH (see Photo 12), and pump controls are protected by a chain-link fence surrounding the manhole and an appropriate warning sign. An institutional control will also be recorded for this property to ensure protection of this trench and wells.

This is the third Five-Year Review (FYR) for the Site. The second FYR was completed in September 2004, and that date was the trigger for this review. An initial FYR was conducted in 1999. The FYR is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

This FYR concluded that the remedy is functioning as designed and continues to be protective of human health and the environment since groundwater is not currently used and access to the disposal area is fenced and the area is covered with topsoil and vegetation. However, in order for the remedy to remain protective in the long term, the institutional controls identified in the ROD and as agreed upon by GE in the Consent Decree must be implemented. Institutional controls must also restrict residential use of the Site, require maintenance of the soil cover and approval from EPA and the State prior to site development. An institutional control on the Balance Rock State Park property will also be necessary to ensure the integrity of the eastern collection trench and the monitoring wells located there.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Rose Disposal Pit		
EPA ID *(from WasteLAN)*: MAD980524169		
Region: 1	**State:** MA	**City/County:** Lanesborough/Berkshire County

SITE STATUS	
NPL status: ☑ Final ☐ Deleted ☐ Other (specify)	
Remediation status (choose all that apply): ☐ Under Construction ☑ Operating ☐ Complete	
Multiple OUs?* ☐ YES ☑ NO	**Construction completion date:** September 1994
Has site been put into reuse? ☐ YES ☑ NO	

REVIEW STATUS	
Lead agency: ☑ EPA ☐ State ☐Tribe ☐Other Federal Agency_____	
Author name: Melissa Taylor	
Author title: Task Order Project Officer	**Author affiliation:** U.S. EPA Region I
Review period:** 4/13/2009 to 9/30/09	
Date(s) of site inspection: 6/9/2009	
Type of review: ☑Post-SARA ☐Pre-SARA ☐NPL-Removal only ☐Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion	
Review number: ☐1 (first) ☐ 2 (second) ☑3 (third) ☐ Other (specify)	
Triggering action: ☐ Actual RA Onsite Construction at OU #____ ☐ Construction Completion ☐ Other (specify)	☐ Actual RA Start at OU#____ ☑ Previous Five-Year Review Report
Triggering action date *(from WasteLAN)*: September 30, 2004	
Due date *(five years after triggering action date)*: September 30, 2009	

* "OU" refers to operable unit.

Issues:

1. The Institutional Controls identified in the ROD have not been implemented yet. Additional restrictions beyond those identified in the ROD are needed to prevent residential use of the site, secure approval from EPA and the State prior to site development, and ensure no disturbance to the soil cover in the disposal area. The current agreement between GE and MassDCR for access and maintenance activities for the eastern trench and monitoring wells in Balance Rock Park should also be recorded as an institutional control.

2. While not an issue in the area downgradient of the site, VOCs are currently present above current vapor intrusion screening values in the overburden groundwater within and around the disposal area.

3. There have been changes to MCLs and other health-based cleanup standards and surface water quality standards since the last five year review.

Recommendations and Follow-up Actions:

1. Complete execution and recording of the GERE which will implement institutional Controls to prevent groundwater use and excavation into the saturated zone within the disposal area. Institutional controls will include additional restrictions to prevent residential use of the site, require approval from EPA and the State prior to site development and maintenance of the soil cover at the site. The GERE will include provisions for inspection of the soil cover at the site as part of the site inspection checklist to ensure no disturbance to the soil cover in the disposal area. An institutional control is also necessary on the Balance Rock Park property to ensure the integrity of the eastern trench and associated monitoring well located on that property.

2. Continued monitoring of shallow groundwater VOC concentrations against vapor intrusion screening levels at on-site downgradient wells to assure that this pathway remains incomplete.

3. Evaluate and issue, if necessary, future decision document to note change in MCLs, surface water quality standards, and reasonably anticipated future land use (no longer for residential purposes).

Other Comments:

The semi-annual groundwater monitoring program and evaluation of concentration trends should continue during the next five- year period. Add sampling parameters for newly identified groundwater VOCs to semi-annual monitoring program. Samples should continue to be collected annually from MW-6C, MW-7C, MW-I0B, and MW-10C and tested for VOCs and PCBs. These wells would be in addition to the wells routinely monitored on a semi-annual basis.

Protectiveness Statement(s):

The remedy at the F. T. Rose Disposal Pit Superfund Site currently protects human health and the environment because access to the disposal area of the Site is restricted through fencing to prevent excavation into the disposal area. With the availability of public water, the groundwater is not being used and ongoing management of migration and groundwater monitoring will continue until MCLs are met. In addition, soils in the saturated zone exceeding the PCB cleanup levels have a soil cover in place to prevent dermal contact and the only residence on the site has been demolished. However, in order for the remedy to be protective in the long term, institutional controls to prevent groundwater use are required. Institutional controls are also required for the disposal area to prevent excavation in this area. These controls will also prohibit residential use and require approval from EPA and the State prior to any site development.

1.0 INTRODUCTION

The purpose of this Five Year Review (FYR) is to determine if the remedy selected for the F.T. Rose Disposal Pit Superfund Site (the Site) in Lanesborough, Massachusetts continues to be protective of human health and the environment. This report summarizes the FYR processes, investigations, and remedial actions undertaken at the Site; evaluates the monitoring data collected; reviews, as appropriate, the Applicable or Relevant and Appropriate Requirements (ARARs) specified in the ROD for changes; discusses any issues identified during the review; and presents recommendations to address those issues.

EPA prepared this statutory FYR consistent with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) §121, 42 U.S.C. § 9621 and the National Contingency Plan. CERCLA §121 states:

> *"If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the Site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such Site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews."*

The EPA interpreted this requirement further in the National Contingency Plan; 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii) states:

> *"If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action."*

EPA conducted this FYR of the remedial actions implemented at the Site. Nobis Engineering, Inc. (Nobis) supported EPA in completion of the review under EPA Contract No. EP-S1-06-03. Work on this review was undertaken between April and September 2009.

This is the third FYR for the Site. Once an initial FYR is complete, the triggering mechanism for subsequent FYRs is the completion date of the immediately preceding FYR. At this Site, FYRs have been completed as follows:

- First Five-Year Review Report - September 1999
- Second Five-Year Review Report - September 30, 2004

Consistently, the target completion date for this third FYR is September 30, 2009. This statutory review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

2.0 SITE CHRONOLOGY

Table 2-1
Chronology of Site Events
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Event	Date
A local contractor (who owned the property at that time) used a trench on the property for disposal of waste oils and solvents from General Electric (GE).	1950s
Mr. and Mrs. Rose purchased the property.	1978
Preliminary assessment, site inspection, and field investigation performed by EPA.	1980-1982
GE provided a permanent potable water supply for the Rose household by connecting the residence to the Lanesborough Municipal Water System.	August 1983
EPA issued GE an Administrative Order under Section 106(a) of CERCLA.	May 1984
GE erected site fencing and posting, covered contaminated soil with a polyethylene film, installed a recovery well to capture a localized free oil layer, and provided permanent potable water to private properties in the area by connecting to the Lanesborough Municipal Water System.	1984
Remedial Investigations performed by Geraghty & Miller for GE.	1984-1987
Blasland & Bouck conducts Feasibility Study for GE.	1986-1988
Endangerment Assessment Report prepared by Geraghty & Miller for GE.	June 1988
EPA signs ROD. Selected remedy includes both source control and management of migration components.	September 1988
GE enters into a Consent Decree with EPA to perform the work detailed in the Record of Decision.	September 1988
GE purchases the 9.7 acre portion of the Site from the Rose family.	November 10, 1989
Approximately 51,200 tons of PCB contaminated soil are excavated from the disposal area and incinerated. Two trenches are constructed to intercept contaminated groundwater plumes. Water in collection trenches is treated using air stripping and carbon adsorption. Sediment in Rose's pond is excavated and the pond is restored to its original wetland habitat.	July 1992 to July 1994
A groundwater monitoring program and treatment of contaminated groundwater is ongoing.	1993 to present
First 5-year review report issued by EPA for the Site.	September 1999
Second 5 year review report issued by EPA for the Site.	September 2004

Event	Date
GE purchases 2.7-acre Rose residential property, adjacent to south side of the Site.	December 2008
GE demolishes former Rose residence	July 2009
Third 5 year review report issued by EPA for the Site.	September 2009

3.0 BACKGROUND

This section contains information pertaining to the Site's physical characteristics, current and prior land use at the property, as well as waste identification and characterization information. This information has been obtained through a review of historical information, previous investigations, zoning and flood maps, and a Site visit.

3.1 Physical Characteristics and Land and Resource Use

The Site is located on Balance Rock Road in Lanesborough, Massachusetts, and is approximately one half mile from the city of Pittsfield, Massachusetts. The Rose property was used for the disposal of waste oils and solvents from GE during the 1950s and possibly later. The 1.5-acre disposal area occupies the northern section of what was at the time a 12.5-acre residential lot. The disposal area was formerly a trench into which the waste oils and solvents were dumped. GE now owns the entire Site including the former trench disposal area and the former Rose residence property which was demolished by GE in July 2009 (Photos 1 and 2). The property encompassing the Site is bounded on the north and northeast by the deciduous forest of Balance Rock State Park, on the east and southeast by cropland and pasture, on the west by mixed forest, and on the southwest by a residential area. A small wetland exists west of the disposal area and a larger forested wetland exists to the southeast of the property on the southern side of Balance Rock Road. A small man-made pond (formerly Rose's pond, restored as a wetland) is located approximately 200 feet south of the disposal area. The former disposal area is located on a small hill north of the former Rose residential structure . The areal extent of the former disposal area is approximately 200 feet by 350 feet and the depth of contaminated soil varies between 10 and 30 feet.

3.2 History of Contamination

During the 1950s, and possibly later, a contractor to GE used the property for the disposal of waste oils and solvents. The waste materials, containing PCBs and VOCs, were dumped into a trench, and as a result contaminated the soil and groundwater.

3.3 Initial Response

Beginning in 1980, a number of site investigations and remedial activities have been carried out on the Site. Preliminary assessment, site inspection, and field investigation were performed by EPA between 1980 and 1982. Subsequent Site activities have been conducted by GE. Permanent potable water was provided to the Rose residence by connecting to the Lanesborough Municipal Water System. In May 1984, EPA issued GE an Administrative Order under Section 106(a) of CERCLA. In compliance with this Order, GE erected site fencing and posting, covered contaminated soil with a polyethylene film, installed a recovery well to capture a localized free oil layer, and connected other private properties to the Lanesborough Municipal Water System. In September 1988, EPA signed a ROD for the Site. The selected remedy was a comprehensive approach for Site remediation which includes both a source control and a management of migration component. Section 4.1 discusses the details of the ROD.

3.4 Basis for Taking Action

The principal contaminants of concern in site soil and groundwater are PCBs and VOCs, respectively. Geraghty & Miller (G&M, 1988) performed an Endangerment Assessment to estimate potential adverse effects to human health and the environment from exposure to contamination at the Site. The Baseline Public Health Risk Assessment found that dermal contact with and ingestion of soils contaminated with PCBs posed an unacceptable lifetime maximum cancer risk for future residents. The future ingestion of drinking water from within the disposal area was also associated with unacceptable cancer and non-cancer risk based on the presence of PCBs, tetrachloroethene, and vinyl chloride in groundwater. Human recreational exposures to sediments and surface water were estimated to be within or below regulatory criteria. The Baseline Environmental Risk Assessment concluded that contaminant concentrations in surface water were below USEPA National Ambient Water Quality Criteria (NAWQC), and ingestion of surface water did not pose a risk to white-tailed deer. However, the report generally indicated that contaminants in all media, including sediment, posed some risks to environmental receptors.

Soil and Sediment. PCBs are the principal contaminant in the soil and sediment, but investigations at the Site have reported both PCBs and VOCs in the soil. PCB soil concentrations in the disposal area varied considerably, with maximum recorded concentrations of 53,000 parts per million (ppm) and 440,000 ppm in the eastern and western portions of the disposal area, respectively. Other portions of the disposal area had concentrations that were

considerably lower. The average soil concentrations ranged from 500 ppm to 1,000 ppm. EPA established a PCB cleanup level of 13 ppm in soil to be protective of human health, assuming future residential use and soil exposure via dermal contact and ingestion. Based on changes in toxicity information, this five year review recommends a re-evaluation of the use of the site for future residential use. If a cleanup level of 13 ppm PCBs were used today, it would be more akin to a cleanup level for commercial/industrial use, as 13 ppm is protective for this use as it is within EPA's acceptable excess cancer risk range of 1×10^{-4} to 1×10^{-6}. However, since the reasonably anticipated future land use is no longer residential, and the site will be restricted for residential use, re-evaluation of the future land use of the site will include only commercial/industrial use (in areas other than the disposal area) and only with prior approval of EPA and Mass DEP. Until then, the institutional control at the site will prohibit residential use and requires consultation with EPA and the state prior to any site development.

Groundwater. VOCs are the principal contaminants in the groundwater on the Site, and previous investigations at the Site have reported both PCBs and VOCs in the groundwater. Two plumes of VOCs are present at the Site. Concentrations of a number of VOCs are above their associated Maximum Contaminant Levels (MCLs), or other identified cleanup standards, and, more recently, an additional break down contaminant has been identified that is above its associated MCL. Dense non-aqueous phase liquid (DNAPL) was also present, and continues to be recovered at the Site. More recently, the potential for vapor intrusion from VOCs in groundwater is under consideration and this FYR recommends that downgradient well monitoring be continued to ensure that pathway remains incomplete. Future site development must also consider a potential vapor pathway before any future building occurs at the site. The site institutional control will require approval from EPA and the State before the site is developed.

4.0 REMEDIAL ACTION

This section describes the Remedial Actions (RA) selected for and implemented at the Site.

4.1 Remedy Selection

The ROD for the Site was signed in September 1988. The remedial action objectives listed in the ROD are:

- Prevent exposure to contaminated soils and groundwater
- Protect uncontaminated groundwater and surface water for current and future use
- Restore contaminated soils and groundwater for future use

The selected remedy for the Site, as identified in the ROD, consisted of the following components:

- Excavation and on-site incineration of approximately 15,000 cubic yards of contaminated soil and sediment, with excavation of soil exceeding concentrations of 13 ppm for PCBs to the water table in the disposal area, and limited excavation in the saturated zone to remove the subsurface free product portion of the disposal area. A soil cover to prevent any direct contact with the remaining PCBs in the saturated zone.

- Active restoration of the shallow overburden aquifer contaminated with VOCs using on-site treatment involving air stripping and carbon adsorption, installation of a bedrock well in the vicinity of the free product area to prohibit migration into the fractured rock, groundwater treatment to reduce contaminant levels to drinking water standards or other appropriate guidelines, and treatment of sediments and surface water in Rose's pond and restoration of the pond to its original wetlands character after remediation.

- Implementation of institutional controls to prevent groundwater use and excavation into the saturated zone within the disposal area.

4.2 Remedy Implementation

The remedial design/remedial action activities were performed by the potentially responsible party, GE.

In September 1988, GE entered into a Consent Decree (CD) with EPA to perform the remediation. Excavation in the source area portion of the disposal area extended into the saturated zone (below the water table). For the remaining portion of the disposal area, excavation of contaminated soil was restricted to the unsaturated zone (above the water table). This was due to the impracticability of excavating the entire saturated zone of the disposal area and possible adverse impacts to adjacent wetlands. Approximately 51,200 tons of PCB contaminated soil were excavated in both the saturated and unsaturated portions of the disposal

area and incinerated on-site. It was determined that institutional controls would be necessary because some PCBs remained in the saturated soil layer.

The management of migration portion of the remedial action was designed to treat contaminated groundwater located in a shallow aquifer to drinking water standards or other appropriate guidelines. Two trenches were constructed to intercept the plumes of contaminated groundwater. From the collection trenches, contaminated groundwater is pumped to a groundwater treatment facility, where it is treated using a combination of carbon adsorption and air stripping (See Appendix B- Site Photos). In addition, sediments and surface water in Rose's pond was excavated, treated, and restored to its original wetland habitat.

The site excavation and incineration was initiated in July 1992 and completed in July 1994. Treatment of contaminated groundwater began in 1993, when the pump and treat system was constructed and is ongoing. Securing institutional controls in the form of a Grant of Environmental Restriction and Easement (GERE) to, among other things, prevent the use of groundwater, prohibit excavation in the saturated zone and prohibit residential use is underway and expected to be completed within 12 months.

This FYR, similar to the second five-year review in 2004, concluded that the remedy is functioning as designed and continues to be protective of human health and the environment. However, in order for the remedy to remain protective in the long term, the institutional controls, identified in the ROD, must be implemented.

4.3 Operations and Maintenance

GE has instituted an operations and maintenance (O&M) program for the Site which includes the continual improvement of the on-site treatment plant and the O&M procedures. An updated Operation and Maintenance Manual for the Groundwater Treatment Facility (BBL, 2004a) was prepared by Blasland, Bouck & Lee (BBL) in March 2006. These programs have prevented substantial deterioration of the plant from occurring and, in some cases, have increased the efficiency and decreased the plant O&M requirements. During weekly inspections of the groundwater treatment plant, a security inspection which includes a fence perimeter inspection and a visual inspection of trespasser or disturbance activity is conducted. In addition, an inspection checklist will be developed as part of the GERE to ensure integrity of the soil cover.

Plant Scheduled Operations. The treatment plant is operated automatically 24 hours per day, seven days per week with an on-site control system. The control system is capable of shutting the plant down in the event of a component failure. This system appears to be functioning properly. If the treatment plant shuts down due to a component failure, an auto-dialer will page a plant operator and give one of twelve preset alarm codes which indicates the reason for the shut down. Treatment plant operators are on-call 24 hours per day, and can respond to an alarm immediately to repair and restart the groundwater treatment plant. Currently, the groundwater treatment plant is operating at a flow of approximately 40 gallons per minute (gpm) and has the capacity to treat at 70 gpm. Treated water is discharged to the nearby wetlands, just west of the Site.

The groundwater treatment plant is defined as an Industrial Grade 2 waste water treatment plant by 257 CMR 2.00. As such, the plant is required to be managed, operated, and maintained by a licensed wastewater treatment plant operator holding a current minimum rating of Industrial Grade 2. In compliance with this regulation, the operators of the plant all hold a minimum of an Industrial Grade 4 license.

Daily inspections are performed by a treatment plant operator as detailed in the Site O&M Manual (BBL, 2004c), where any maintenance issues are noted in the plant logbook and maintenance is scheduled. Numerous checks are performed on each routine facility inspection including:

- General facility condition
- Data collection from gauges
- Off-gas heating unit check
- Acid/caustic supply check
- Check of pressure drop across liquid phase granular activated carbon (GAC) units
- Check for bacterial build-up on air stripper tower
- Check of effluent drains

Other maintenance activities are scheduled less frequently including checking the emergency equipment (monthly), below grade hydraulic structures (quarterly), lighting protection system (every six months), and electrical systems (annually).

Manual operations are also conducted during daily inspections and may include:

- Backwashing the carbon beds
- Change out of vapor phase and/or liquid phase carbon
- Air stripper acid washing
- Replacement stripper packing material
- Cleaning the intake of influent pump
- Cleaning of retention pumps
- Clean out of accumulated sludge

All O&M activities at the Site are documented and recorded in the monthly O&M status reports in accordance with Section XI of the CD.

Additionally, samples are collected as part of O&M to examine efficiency of the treatment processes and to ensure that treated water does not exceed Performance Standards. Numerous treatment by-products are analyzed for PCBs prior to disposal, including GAC backwash materials, tower wash filters and tower wash residuals. For liquid-phase carbon monitoring, removal efficiencies of VOCs are determined from effluent water samples monthly to allow coordination of carbon change-outs to avoid "break through." For vapor-phase carbon monitoring, air stripper off-gases are monitored for VOC vapors using a 10.2 eV photoionization detector (PID). Water samples are collected from the effluent lines monthly and are analyzed for 19 VOCs and 7 different PCB aroclors. During the period from January 2008 to March 2009, no PCBs were detected. The VOC cis-1, 2-Dichloroethene, a breakdown contaminant, was detected in 13 out of 15 monthly effluent samples at a range of concentrations from non detect at 1.0 parts per billion (ppb) (August and September 2008) to 14 ppb (December 2008), with an average concentration of 5.0 ppb. The EPA MCL in groundwater for cis-1, 2-Dichloroethene is 70 ppb.

The treatment plant has recently been operating continually, with no unscheduled interruptions. The plant operation is temporarily suspended for scheduled maintenance such as carbon bed backwash, carbon change out, and air stripping tower acid washing. The monthly O&M progress reports from April 2008 through March 2009 were reviewed. No instances of O&M issues were noted.

Dense Non Aqueous Phase Liquid (DNAPL) Collection at the West Collection Trench. Shortly after the groundwater treatment system was first put into operation, a significant quantity of DNAPL was unexpectedly drawn into the west collection manhole (See Appendix B-Site Photos). From there, the DNAPL flowed through the entire treatment system, forcing the treatment plant to be shut down, and requiring the entire treatment system to be decontaminated. In order to prevent this from reoccurring, GE installed a pneumatic pump in a well (stand pipe) within the west collection manhole. GE has been manually removing DNAPL from the well with this pump on a weekly basis. GE reported that an air compressor is brought to the Site for the DNAPL collection. Typically, 4 gallons to 4.5 gallons of DNAPL are collected each month (based on the 2008 and early 2009 monthly O&M progress reports), with a maximum of 5 gallons removed in August 2008. Weekly DNAPL recovery volumes during the first six months of 2009 were on the order of one gallon per week (Spectra and Arcadis, 2009). The DNAPL is pumped into five gallon containers and stored on-site, prior to transport off- site under hazardous waste manifest by a licensed hazardous waste hauler.

Due to excessive amounts of rainfall in June 2009, in July 2009, the monthly DNAPL recovery volume increased to 42.5 gallons. The volume of DNAPL collected since that time has diminished rapidly and it is expected that collection volumes will return to normal levels in a short period of time. GE will continue to implement the approved manual recovery procedures and will consult with EPA and Mass DEP in the event the DNAPL recovery procedures need to be modified.

The continued collection of DNAPL is necessary to the continued operation of the groundwater treatment plant. Evidence supporting this includes the continued and consistent quantity of DNAPL recovered from the well on a weekly basis, and the effect of a build-up of DNAPL in the past, which required unscheduled shut-down and decontamination of the treatment plant.

Discharge Location. Treated effluent from the treatment plant is discharged though a dispersal system located in the vicinity of monitoring well MW-24A into a wetland west of the Site (See Appendix B-Site Photos). The wetland, classified as a palustrine forested/emergent wetland, is dominated by eastern hemlock (*Tsuga canadensis*) and red maple (*Acer rubrum*). The wetland substrate appears to be an organic muck. Historically, there has been no observable flow in this area of the wetland. The wetland also receives Site groundwater.

Downstream of the wetland is an area referred to as the pond (Rose's pond), although since remediation, the manmade pond no longer functions as an open water habitat. This area is now a wetland dominated by grasses with some limited cattail (Typha sp.) interspersed around the previously existing pond shoreline. Below the pond, a narrow stream channel develops as the surface gradient increases. The stream depth is shallow and substrate is composed of sand and cobble. The stream is culverted as it flows in a southerly direction underneath Balance Rock Road. South of Balance Rock Road, the stream flow continues to increase with the increase in surface gradient, and enters another forested wetland. Ultimately, the system discharges to Pontoosuc Lake.

5.0 PROGRESS SINCE LAST FIVE-YEAR REVIEW

The following recommendations were made in the previous FYR report (USEPA, 2004).

- Place deed restrictions on the disposal area to prevent excavation without proper precautions.

- Work towards establishment of enforceable institutional controls to prevent excavation without proper precautions, and to prevent use of groundwater on Site property.

5.1 Status of Recommendations from Previous Five Year Review

In the previous FYR, a list of recommended actions for implementing enforceable institutional controls was developed. These issues are presented in Table 5-1. Table 5-1 also includes a description of what actions were taken to resolve the issues noted in the previous FYR.

Table 5-1
Status of Recommendations from Previous Five-Year Review
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Issues from Previous Review	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Legally enforceable Institutional Controls are required for long-term protectiveness, but have not yet been implemented	PRP	Within 12 months from the submittal date of this five year review	As of September 2009, deed restrictions have not been implemented to prevent excavation in the disposal area and use of groundwater on site property. GE purchased the remaining aces of the site property in 2008 which streamlines the imposition of institutional controls with ownership now residing in one entity. A GERE has been drafted and is nearing final review by EPA and the State. Recording is expected within the next 12 months.	On-going

5.2 Progress Since Last Five-Year Review

Below is a summary of progress since the previous FYR.

5.2.1 Institutional Controls

The ROD specifies institutional controls to restrict groundwater use and to prevent excavation into the disposal area, where PCB soil contamination above the 13 ppm cleanup level remains below the water table. In 2008 GE acquired the remaining acreage of the site, now owning the entire site. Access to the former disposal area is controlled by a fence constructed and maintained by GE on the property. This acquisition streamlines the imposition of institutional controls in that ownership resides with one owner. This eliminates the need to negotiate with a separate landowner to impose the deed restriction on private property and eliminates the need to perform all title search, surveys and other associated requirements necessary to record a restriction on two separate properties. However, formal institutional controls are not yet in place. A Grant of Environmental Restriction and Easement (GERE) is currently under review by EPA and the State and is expected to be recorded within the next 12 months. The GERE will restrict the use of groundwater, prohibit excavation in the saturated zone; prohibit residential use, day care, educational activity or use, community activity or use, agricultural activity or use, or use as a park; prohibit any use that would interfere with the implementation of the remedy; and require approval from EPA and the State prior to site development. In addition, an

agreement is in place between GE and Mass DCR that allows the eastern collection trench (Photograph 12-Appendix B) to be located on the Balance Rock Park property and allows GE access for monitoring and maintaining the trench and the monitoring wells also located on Park property. The agreement also states that no supply wells are located on park property, and states that none would be installed without consultation with GE and EPA. (See Appendix E for letter agreement between Mass DCR and GE). An additional institutional control will be recorded to formalize this agreement and ensure the integrity of the eastern collection trench and associated monitoring wells.

6.0 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the FYR process and the actions taken by EPA to complete the review.

6.1 Administrative Components

Melissa Taylor (EPA Remedial Project Manager) led the F.T. Rose Disposal Pit Superfund Site FYR team. Technical assistance was provided by Nobis. The review was conducted between April 2009 and September 2009. The Scope of Work included the following activities:

- Project Planning and Support
- Document Review
- Standards (ARAR) Review
- Site Interviews
- Site Inspection/Technology Review
- Five-Year Review Report preparation
- Task Order Close Out

6.2 Community Notification and Involvement

The Town of Lanesborough was notified via telephone regarding the initiation of the FYR. Nearby residences were canvassed to inform residents of the FYR and to conduct interviews, if possible. The final FYR report will be provided to the Town and a press release will be issued to announce its availability.

6.3 Document Review

This FYR consisted of a review of the documents listed below.

- Record of Decision (September, 1988)
- Consent Decree (September, 1989)
- Remedial Action Completion Report (September, 1994)
- Scope of Work for Rose Disposal Pit Superfund Site (June, 1997)
- Site Remediation Work Plan, Vol. 4 (May, 1997)
- First Five-Year Review (March, 1999)
- Operation & Maintenance Manual (Revised, July, 2004)
- Second Five-Year Review (September, 2004)
- Groundwater Monitoring Reports (for Fall 2005 through Fall 2008)
- General Electric Co. Monthly Progress Report No. 203-214 (April, 2008-March, 2009)

Complete references are included in Appendix A.

6.4 Data Review

A summary of relevant data regarding the components of the Site remedy is presented below. The results of these sampling events are summarized below by media.

6.4.1 Groundwater

A groundwater monitoring program has been developed to quantitatively describe groundwater conditions on the Site as well as to compare current groundwater conditions with those observed in the past. GE performs semi-annual sampling events each year using low-flow sampling techniques. VOCs are the principal contaminants in the groundwater on the Site, and previous investigations at the Site have reported both PCBs and VOCs in the groundwater. Laboratory analyses for VOCs are performed under Methods 8260B by Columbia Analytical Services, Inc. of Rochester, NY and PCB analyses are performed under Method 8082, by Accutest Laboratories in Dayton, New Jersey. Generally, samples are collected at 12 locations: 8 groundwater monitoring wells, 2 manholes associated with groundwater collection trenches, and at locations between and at the end of the two carbon treatment vessels within the groundwater treatment plant (GWTP) (See Appendix B),. Additionally, at the recommendation of the previous FYR, four supplemental wells (MW-6CR, MW-7C, MW-10B, and MW-10C) are sampled annually during the Spring semi-annual event. Previous to this FYR, low levels of VOCs and PCBs were detected in these wells screened in the mid-level (MW-10B) and deep groundwater in the till (MW-6CR, MW-7C, and MW-10C). There was a concern that

contamination may be penetrating the till and reaching the upper bedrock on the Site, thus triggering the need for monitoring in these areas.

Since the monitoring wells on the Site vary in depth, the wells are divided into three zones based on length and depth of screened interval. The "A" zone monitoring wells are generally screened from approximately 5 to 15 feet below ground surface, the "B" zone monitoring wells are generally screened from approximately 30 to 40 feet below ground surface, and the "C" zone monitoring wells are screened deeper below the ground surface.

During each semiannual sampling event, water level elevations are measured in numerous monitoring wells in the "A" and "B" zones and in two wells in the "C" zone. Groundwater contour maps for the "A" and "B" zones, representing data from the Fall 2008 sampling round, are shown in Appendix E. As shown on Figure 2 in Appendix E, water levels within the collection trenches are lower than nearby "A" zone wells, showing that the trenches influence shallow groundwater flow.

Since the implementation of the remedial action, VOC concentrations on the Site have generally decreased temporally (1983 to 2009) as demonstrated by statistically significant linear regression analysis from several monitoring wells (Figure 6-1 for MW-6). At nearly all wells sampled in 2007 and 2008, concentrations of total VOCs decreased from previous sampling rounds or VOCs were not detected. In some wells (e.g. MW-12A), minimal increases (6 to 101 ppb) in total VOCs were recorded from the previous year's sampling events. However, total VOC concentrations in the past five years appear to have stabilized and, in general, have remained consistent.

Groundwater Performance Standards were created in the ROD and modified in the Consent Decree for 15 VOCs and for total PCBs and are presented in Table 6-1.

Table 6-1
Performance Standards for Groundwater
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Contaminants of Concern	Performance Standard[1] (ppb)
1,1-Dichloroethene	7
1,1,2-Trichloroethane	0.63
1,2-Dichlorobenzene	600
1,3-Dichlorobenzene	620
1,4-Dichlorobenzene	75
Benzene	5
Chlorobenzene	300
Ethylbenzene	700
Methylene Chloride	5
Tetrachloroethene	5
Toluene	2000
trans-1,2-dichloroethene	100
Trichloroethene	5
Xylenes (total)	10000
Vinyl Chloride	2
PCB	0.5

Notes:

1. Performance Standards taken from F.T. Rose Disposal Pit Superfund Site, Lanesborough, MA, Site Remediation Plan, Volume 4 (Supplemental) Groundwater Monitoring Plan, General Electric Company, Pittsfield, MA, revised May 1993.

During sampling events in 2007 and 2008, seven VOCs were detected above their Performance Standards in two monitoring wells and the western collection trench manhole (WCT-MH): 1,1,2-trichloroethane (MW-12A), 1,1-dichloroethene (MW-12A), 1,2-dichlorobenzene (WCT-MH), benzene (MW-12A & WCT-MH), tetrachloroethene (MW-6), trichloroethene (MW-6, MW-12A, and WCT-MH), and vinyl chloride (MW-12A and WCT-MH) (Spectra & Arcadis, 2009) (Table 6-2).

There are no Performance Standard in the CD for 1,2-dichloroethane, cis-1,2-dichloroethene, o-xylene, and acetone which were all detected in Fall 2008. However, EPA MCLs do exist for 1,2-dichloroethane, cis-1,2-dichloroethene, and total xylenes at 5 ppb, 70 ppb, and 10,000 ppb, respectively. 1,2-dichloroethane and cis-1,2-dichloroethene were detected during both 2008 sampling events at concentrations ranging between non-detect (eleven locations) to 4.8 ppb (MW-12A) for 1,2-dichloroethane and between non-detect (five locations) and 2,000 ppb (WCT-

MH) for cis-1,2-dichloroethene. Past exceedances of their respective MCLs have been observed for the aforementioned VOCs; however, during the most recent groundwater sampling in November 2008, only cis-1,2-dichloroethene in samples from MW-12A and WCT-MH exceeded the MCL (1,100 ppb and 2,000 ppb, respectively, compared to 70 ppb) (See Figure 4 in Appendix E). .

At a much reduced frequency, several other VOCs (carbon disulfide and chloromethane) for which no Performance Standards have been specified were detected at several locations on the Site within the past five years. Carbon disulfide was detected in WCT-1 and WCT-MH at 0.64 ppb and 0.56 ppb, respectively, in the Fall 2005 sampling event; chloromethane was detected in E7-R at 0.38 ppb in the Fall 2007 sampling event (see Table 6-2).

Sample data and statistical trend analysis indicate that PCB concentrations at groundwater sampling locations have been declining temporally, but the results are variable from year to year, from season to season, and between filtered and unfiltered samples. However, PCB data has been more consistent after commencement of low-flow sampling in 1998. Most PCB data collected are below the previous year's concentrations, and PCB concentrations in samples collected in 2008 were well below historical maximum values.

The previous FYR showed PCBs were consistently detected in unfiltered samples from five of the eight monitoring wells and in each collection trench manhole sampled in 2003 and 2004. Although a similar trend was observed in 2005 and 2006, review of the 2007 and 2008 unfiltered PCB data demonstrates a reduced detection frequency than previously reported. While unfiltered PCBs were detected in the WCT-MH during all four rounds of semi-annual monitoring, unfiltered PCBs were only detected in ECT-MH groundwater during Spring 2008. Additionally, unfiltered PCBs were only detected in two monitoring wells (MW-12A and WCT-1) over the course of the four sampling rounds (Spring 2007 and Spring 2008). The observation that unfiltered PCBs were detected only in WCT-MH during the Fall of 2007 and 2008, and were observed in MW-12A, WCT-1, and WCT-MH during the Spring events suggests potential seasonal variability with respect to unfiltered PCB detections, although the cause of this behavior is not well understood.

Total PCB detections over the past five years in WCT-NH have consistently been above the Performance Standard of 0.5 ppb. Unfiltered PCBs were detected above the Performance

Standard in MW-12A during the Spring 2008. Unfiltered PCB concentrations in samples from WCT- 1 exceeded the Performance Standard in November 2002 and July 2003, but not in December 2003 and May 2004. PCBs have not been detected in filtered samples from WCT-1 since April 2001. The semi-annual groundwater monitoring program and evaluation of concentration trends should continue during the next five- year period.

With regard to supplemental monitoring wells (sampled annually during the Spring as recommended in the previous FYR), MW-6C and MW-10C continued to show low levels of VOC and PCB contamination over the past five years suggesting that small amounts of contamination may be penetrating the till and reaching the upper bedrock on the Site. However, no exceedances of the performance standards were observed in MW-10C during the last five years. Trichloroethene and tetrachloroethene were also found at concentrations exceeding the Performance Standard at supplemental well MW-10B in each of the monitoring rounds from 2005 through 2008 (four). Therefore, it is recommended that, for the next five-year period, samples continue to be collected annually from MW-6C, MW-7C, MW-l0B, and MW-10C and tested for VOCs and PCBs. These wells would be in addition to the wells routinely monitored on a semi-annual basis. In addition, recent information has come to light that 1,4-dioxane, a breakdown product from trichloroethane, can be present in groundwater where trichloroethane exceeds the MCL. Therefore, it is recommended that this compound be included in the groundwater monitoring program, to determine if it is present and if so, at what concentrations. EPA does not have an MCL for 1,4-dioxane, however, the state has a Massachusetts Contingency Plan GW-1 standard of 3 ppb for 1,4-dioxane.

Table 6-2
Groundwater Performance Standard Exceedances – 2007 and 2008 Data
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Location	Compound	Concentration[1]	Performance Standard	Event
MW-6	Tetrachloroethene	12	5	May-07
	Tetrachloroethene	6.7	5	May-08
	Trichloroethene	72	5	May-07
	Trichloroethene	7	5	Nov-07
	Trichloroethene	25	5	May-08
	Trichloroethene	8.8	5	Nov-08
MW-12A	1,1,2-Trichloroethane	1.7	0.63	Nov-07
	1,1,2-Trichloroethane	1.4	0.63	Nov-08
	1,1-Dichloroethene	7.6	7	Nov-08
	Benzene	15	5	Nov-07
	Benzene	13	5	Nov-08
	Trichloroethene	80	5	May-07
	Trichloroethene	560	5	Nov-07
	Trichloroethene	140	5	May-08
	Trichloroethene	510	5	Nov-08
	Vinyl Chloride	34	2	May-07
	Vinyl Chloride	200	2	Nov-07
	Vinyl Chloride	73	2	May-08
	Vinyl Chloride	140	2	Nov-08
WCT-MH	1,4-Dichlorobenzene	280	75	May-07
	Benzene	6.2	5	Nov-07
	Benzene	6.4	5	May-08
	Benzene	6.4	5	Nov-08
	Trichloroethene	8.4	5	Nov-07
	Vinyl Chloride	19	2	May-07
	Vinyl Chloride	18	2	Nov-07
	Vinyl Chloride	14	2	May-08
	Vinyl Chloride	25	2	Nov-08

Note:

1. All concentrations are in parts per billion (ppb).

6.5 Site Inspection

A site inspection was conducted on June 9, 2009. Participants included Melissa Taylor of EPA; Paul Craffey of MassDEP; Jeff McCullough and Jason Fopiano of Nobis; Bob Mallache of MassDCR, and several PRP representatives: John Novotny (GE), John Levesque (GE), Sean Coyle (Veolia Water), John Ciampa (Spectra), and Nick Smith (Arcadis). The purpose of the inspection was to help assess the protectiveness of the remedy by observing the condition of

the site fence, the soil cover, the monitoring wells, the groundwater treatment plant, and the pond and wetlands areas within the Site boundary.

Veolia Water is currently under contract with GE to operate the Site treatment plant. GE and Veolia Water personnel participated in the inspection and responded to questions regarding the O&M of the treatment plant. A completed Site Inspection Checklist Form is included as Appendix C.

During the Site visit, GE provided access to the plant and Site, described the process and controls of the treatment plant, answered specific questions about the plant and Site, and led a tour of the Site and treatment plant facility. GE also provided examples of the routine inspection logs kept for the Site, an explanation of system modifications which have been implemented, and the routine and non-routine maintenance which has taken place at the treatment plant since startup. The GWTP was in good condition and the documentation of O&M activities was in good order.

The east collection trench, located on state park property was also inspected. This location is accessed via a gate near well cluster MW-7. The manhole, ECT-MH (see Photo 11), and pump controls is protected by a chain-link fence surrounding the manhole and appropriate warning sign. The fence and locked gate appeared in good condition.

During the Site visit, Nobis also inspected the wetland area, the pond area, and the stream. Vegetation within the wetland appeared to be healthy and there were no obvious signs of plant stress attributable to the GWTP discharge. Vegetation around the stream appeared dense, with ground cover and a developed low canopy.

6.6 Interviews

Interviews of PRP representatives, local and State officials, and property owners adjacent to the Site were conducted. The objective of the interviews was primarily to obtain general information and to update current understanding of activities at the Site. Summaries of the interviews regarding this third FYR are included in Appendix D.

Three in-person interviews were conducted by Nobis and EPA on June 9, 2009 with Mr. Paul Craffey (MassDEP Project Manager), Mr. Bob Mallache (MassDCR Regional Director), and

PRP representatives Mr. John Levesque (GE), Mr. Nick Smith (Arcadis), and Mr. John Ciampa (Spectra). No interviewee expressed any major concerns regarding the Site and the effectiveness of the remedy, and in general all were pleased with the level of communication from the MassDEP and the EPA concerning activities at the Site and around the town. Both Mr. Craffey and GE representatives expressed that it may be plausible to reduce the number of monitoring points in future events because several wells continue to demonstrate non-detections. No additional concerns or major issues were raised during these interviews. The GE representatives also expressed that formal institutional controls have yet to be implemented at the Site, but that actions are currently being taken to proceed with their implementation.

EPA conducted one phone interview on June 15, 2009 with Mr. John Macht, a resident of the Town of Lanesborough who owns property adjacent to the Site. Mr. Macht expressed he was partially pleased and partially displeased with the project. He was pleased regarding remediation of contamination and stated that GE has done a good job of housekeeping on the property. Mr. Macht was displeased as to how GE plans to leave the Site when they are done. Mr. Macht stated that GE agreed to remove excess soil that consists of an 8 - 10 ft berm adjacent to his property, but have not done so to date. Mr. Macht also indicated that he has been trying to sell one of his properties at 125 Balance Rock Road for 3 years to no avail. He said that any prospective buyers are not interested, nor are local real estate agents, because of the property's proximity to the Rose Superfund Site. He asked for a "comfort letter" from EPA that indicates that there is no contamination on his property relating to the site and that the site has been cleaned up with the exception of the groundwater remediation. When EPA visited the site on July 21, 2009 to meet Mr. Macht and GE representatives regarding the berm adjacent to Mr. Macht's property, EPA provided Mr. Macht with a comfort letter. EPA inspected the property line and observed a rise in elevation of approximately 4 feet from Mr. Macht's property to the GE property and did not observe a berm. GE representatives stated that there was a large berm present in this location during the incineration portion of the remedy but the berm was removed years ago after the incineration remedy was completed. The rise in elevation is a result of site regrading following completion of the remedy.

Nobis conducted a telephone interview on July 29, 2009 with the Town of Lanesborough Administrator, Paul Boudreau. Mr. Boudreau was not aware of any resident complaints regarding the site or its operations. He expressed that the Town of Lanesborough has not been routinely informed of the status of site and the progress of site cleanup.

7.0 TECHNICAL ASSESSMENT

This section provides a technical assessment of the remedy implemented at the Site, as outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001). The remedy has been evaluated based on its function in accordance with decision documents, its adherence to valid risk data and scenarios, as well as any other information that could have affected the remedy's protectiveness.

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

Yes. The review of documents, ARARs, and risk assumptions indicates that the remedy was constructed in accordance with the ROD and continues to be protective of human health and the environment since groundwater is not currently used and access to the disposal area is fenced and the area capped. Public water is available in the area. Groundwater extraction and treatment is ongoing and continues to be needed, since groundwater contaminant concentrations are still above Performance Standards in some monitoring wells. The disposal area is owned by GE and access is restricted. However, in order for the remedy to remain protective in the long term, the institutional controls identified in the ROD and as agreed upon by GE in the Consent Decree must be implemented. Institutional controls must also restrict residential use of the Site, require approval from EPA and the State prior to site development as well a protect the integrity of the soil cover. Efforts to establish enforceable institutional controls are ongoing and a Grant of Environmental Restriction is expected to be recorded within the next 12 months. In addition, GE and MassDCR have entered into an agreement that allows GE to access the monitoring well and the eastern collection trench and associated manhole located in the Park for monitoring and maintenance activities. The manhole, ECT-MH (see Photo 11-Appendix B), and pump controls are protected by a chain-link fence surrounding the manhole and an appropriate warning sign. An institutional control on the Balance Rock State Park property will be necessary to ensure the integrity of the eastern collection trench and the monitoring wells located there.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

No. Toxicity values, exposure assumptions, exposure pathways to be considered, and methods of evaluating human health risk have all been updated since the time of the remedy selection.

Potential dermal contact with groundwater used as a household water source, inhalation of volatiles during household water use, and the vapor intrusion pathway were not evaluated in the Endangerment Assessment supporting the ROD. However, these pathways are no longer of concern for on-site use since the residential structure at the property has been demolished and the GERE will prevent future residential use and any groundwater use at the site. Further, for nearby off-site occupied residences, there is currently no complete vapor intrusion pathway, since VOCs have not been detected above vapor intrusion screening levels at wells downgradient of the disposal area. However, continued monitoring of these wells is recommended to ensure that this pathway remains incomplete. The Endangerment Assessment evaluation of ecological risks concluded that contaminants posed some level of risk to environmental receptors. Rose Pond sediments were excavated and the pond restored to its original wetland habitat during the source control remedial action, eliminating exposures to ecological receptors at Rose Pond. However, potential groundwater contribution to surface water in streams and wetlands exists where human exposures could occur. MCLs and Maximum Contaminant Level Goals (MCLGs) established as groundwater clean-up goals in the ROD, as modified in the Consent Decree remain valid; however, some of those standards have been updated. The soil clean-up goal for PCBs of 13 ppm remains reasonable. If a cleanup level of 13 ppm PCBs were used today, it would be more akin to a cleanup level for commercial/industrial use. However, since the reasonably anticipated future land use is no longer residential, and the site will be restricted for residential use, re-evaluation of the future land use of the site will include only commercial/industrial use (in areas other than the disposal area) and development will occur only with prior approval of EPA and Mass DEP. The chronic ambient water quality criteria (AWQCs) have been added to and updated since the ROD, but have not changed since the 2004 five year review. The RAOs used at the time of the remedy selection are still valid. Additional institutional controls are needed to prevent residential use, require consultation with EPA and the State prior to site development and ensure that there is no disturbance to the soil cover.

Changes in Standards or TBCs

The 1988 ROD identifies the following federal laws, regulations and guidance as applicable or relevant and appropriate (ARARs) to the remedy:

- Resource Conservation and Recovery Act (RCRA) 40 CFR Part 264. The source control remedial activities, the groundwater treatment system, and long-term monitoring were designed in accordance with applicable RCRA requirements. The PRP continues to perform O&M as necessary. Groundwater monitoring is performed in accordance with the RCRA Groundwater Protection Standard specified in 40 CFR 264.90-264.120. During weekly inspections of the groundwater treatment plant, a security inspection which includes a fence perimeter inspection and a visual inspection of trespasser or disturbance activity is conducted. In addition, an inspection checklist will be developed as part of the GERE to ensure there is no disturbance of the soil cover. A permeable cover was installed per the Consent Decree Statement of Work rather than a full RCRA subtitle C cap, which remains appropriate as a way to promote flushing of the aquifer to further enhance the ability to meet groundwater performance standards.

- Clean Water Act (CWA) 40 CFR Part 122. Adversely impacted wetlands (Rose Pond) were remediated according to the site remediation plan. A groundwater collection, treatment, and monitoring system is being implemented. Impacts of remedial actions on wetlands are monitored.

- Safe Drinking Water Act (SDWA) 40 CFR Part 141; EPA Groundwater Protection Strategy. New applicable or relevant and appropriate requirements (ARARs) have been promulgated since the 1988 ROD including updates to MCLs and non-zero MCLGs. Table 7-1 presents a comparison of MCLs and MCLGs in effect in 1988 and those in effect in 2009. Changes in MCLs do not affect the protectiveness of the remedy because the remedy relies on providing an alternate safe drinking water source, and institutional controls.

- Executive Order 11990 – Protection of Wetlands. Adversely impacted wetlands were remediated according to the site remediation plan.

- Toxic Substances Control Act (TSCA) 40 CFR Part 761. Soils contaminated with PCBs were incinerated, treated, and disposed of in accordance with TSCA regulations. The selected remedy remains protective by virtue of the fact that

although PCBs in excess of 13 ppm were left in place in the saturated zone, a soil cover to prevent dermal contact was placed above the disposal area using treated soils that contain less than 2 ppm PCBs, and continued monitoring, collection and treatment of groundwater and institutional controls are being implemented to restrict residential use of the site, use of groundwater on the site, and approval from EPA prior to any site development. Clean Air Act (CAA). CAA regulations, including air monitoring, were followed during the excavation and treatment of soils and continue during groundwater treatment and monitoring.

- Occupational Safety and Health Act (OSHA) 29 CFR Part 1910. OSHA regulations were followed during the excavation and treatment of soils and continue during groundwater treatment and monitoring.

The following federal and state ARARs were identified for the selected remedy in the 2004 FYR:

Location-specific ARARs:

- Resource Conservation and Recovery Act (RCRA)
- Clean Water Act (CWA)
- Fish and Wildlife Coordination Act (16 U. S. C. 661)
- Wetlands Executive Order (EO 11990)
- Executive Order (EO 11988)
- Massachusetts Wetlands Protection Regulations
- Massachusetts Hazardous Waste Facility Siting Regulations

Table 7-1
Comparison of 1988 and 2009 ROD-Specifled Numerical, Chemical-Specific ARARs, and Criteria for Groundwater Chemicals of Concern[A] with Current Standards and Criteria
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Chemical	SDWA[C]				Massachusetts [D, E]			
	MCL		MCLG		ORSGs		MMCLs	
	1988 (mg/L)	2009 (mg/L)	1988 (mg/L)	2009 (mg/L)	1988 (mg/L)	2009 (mg/L)	1988 (mg/L)	2009 (mg/L)
COCs[B]								
trans-1,2-Dichloroethylene	--	0.1	0.07	0.1	NI	na	NI	0.1
Ethylbenzene	--	0.7	0.68	0.7	NI	na	NI	0.7
PCBs	--	0.0005	--	0	NI	na	NI	0.0005
Tetrachloroethylene	--	0.005	0	0	NI	na	NI	0.005
Toluene	--	1	2	1	NI	na	NI	1
Trichloroethylene	0.005	0.005	--	0	NI	na	NI	0.005
Vinyl chloride	0.002	0.002	--	0	NI	na	NI	0.002
Other Site Contaminants[F]								
Benzene	0.005	0.005	--	0	NI	na	NI	0.005
Carbon Disulfide	NI	na	NI	na	NI	na	NI	na
Chlorobenzene	--	0.1	0.06	0.1	NI	na	NI	0.1
o-Dichlorobenzene	--	0.6	--	0.6	NI	na	NI	0.6
p-Dichlorobenzene	0.075	0.075	--	0.075	NI	na	NI	0.005
m-Dichlorobenzene	--	na	--	na	NI	na	NI	na
1,2-Dichloroethane	NI	0.005	NI	0	NI	na	NI	0.005
1,1-Dichloroethylene	0.007	0.007	--	0.007	NI	na	NI	0.007
Cis-1,2-Dichloroethylene	NI	0.07	NI	0.07	NI	na	NI	0.07
2,4-Dimethylphenol	NI	na	NI	na	NI	na	NI	na
Methylene chloride	--	0.005	--	0	NI	na	NI	0.005
Naphthalene	NI	na	NI	na	NI	0.14	NI	na
1,2,4-Trichlorobenzene	NI	0.07	NI	0.07	NI	na	NI	0.07
1,1,2-Trichloroethane	--	0.005	--	0.003	NI	na	NI	0.005
Xylenes	--	10	0.44	10	NI	na	NI	10
Acetone	NI	na	NI	na	NI	6.3	NI	na

Notes:

A. This table presents an update of the regulations and criteria identified in Table 5 of the 1988 Record of Decision.

B Chemicals of concern were drawn from the 1988 Record of Decision, table 6 entitled *Site Contaminants of Concern.*

C Federal Safe Drinking Water Act, Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs). 40 CFR 141, National Primary Drinking Water Standards.

D Massachusetts Department of Environmental Protection, Office of Research and Standards Guidelines, drinking water guidelines. Spring 2009.

E Massachusetts Department of Environmental Protection, 30 CMR 22.00, Drinking Water Regulations, Massachusetts maximum contaminant levels.

F Other chemicals detected as site contaminants, but not selected as Chemicals of Concern.

na = Not Available (Standards have not been generated).

NI = Not identified in the 1988 ROD.

Chemical-specific ARARs:

- Safe Drinking Water Act (SDWA)
- Resource Conservation and Recovery Act (RCRA)
- Federal Ambient Water Quality Criteria (AWQC)
- EPA Office of Water Guidance - Water-related Fate of 129 Priority Pollutants (1979)
- Health Advisories (EPA Office of Drinking Water)
- Threshold Limit Values (TLVs)
- National Oceanic Atmospheric Administration (NOAA)
- Ontario Ministry of Environment and Energy (OMEE)
- Massachusetts Groundwater Quality Standards
- Massachusetts Drinking Water Requirements
- Massachusetts Surface Water Discharge Permit Program Regulations
- Massachusetts Air Quality/Air Pollution Regulations
- Massachusetts Office of Research and Standards Guidelines (ORSGs)
- Massachusetts Guidance on Acceptable Ambient Air Levels (AALs)

Action-Specific ARARs:

- Resource Conservation and Recovery Act (RCRA)
- Clean Water Act (CWA)
- Clean Air Act (CAA)
- Department of Transportation (DOT) Rules for Transportation of Hazardous Materials
- Massachusetts Hazardous Waste Regulations, Phase I and II
- Massachusetts General Laws
- Massachusetts Wetlands Protection Regulations
- Massachusetts Surface Water Discharge Permit Program Regulations
- Massachusetts Certification for Dredging, Dredged Material Disposal, and Filling in Waters
- Massachusetts Employee and Community "Right to Know" Regulations

Each of these ARARs remains in effect. Updated criteria or standards are available for some of the chemical-specific standards. Changes in standards since the 1988 ROD do not appear to change the protectiveness of the remedy. Table 7-1 presents a comparison of 1988 ROD-specified MCLs, MCLGs, Massachusetts ORSGs, and Massachusetts drinking water standards (MMCLs) to 2004 standards and 2009 standards. None of the standards for the site contaminants has changed since 2004. Recent sampling has detected acetone in groundwater, therefore acetone has been added to the table. Table 7-2 presents a comparison of 1988 ROD-specified water quality criteria to 2004 and 2009 criteria. No changes have occurred since 2004.

Changes in Exposure Pathways

The human health exposure pathways considered in the Endangerment Assessment (G&M, 1988) included: (1) ingestion of groundwater as drinking water; (2) ingestion of and dermal contact with soil; (3) dermal contact with sediment; (4) ingestion of and dermal contact with surface water; and inhalation of fugitive dust and VOC vapors. Risks exceeding EPA risk management guidelines were noted for dermal contact with and ingestion of soils at the disposal area for residents and ingestion of shallow groundwater. The source control remedial actions and provision of public water supply to nearby residents has reduced potential exposures via these exposure pathways.

Potential dermal contact with groundwater used as a household water source and inhalation of volatiles during household water use was not previously evaluated. However, although the site itself is zoned for residential use, the former residence located at the site was demolished by GE in July 2009. Nearby residences are now served by the public water supply. Despite the provision of a permanent alternative water supply, the potential use of contaminated groundwater remains an issue because of the lack of institutional controls prohibiting groundwater use. Establishment of institutional controls preventing groundwater use on site and prohibiting residential use is in process.

As noted in the 2004 five year review, the vapor intrusion pathway was not evaluated in the original endangerment assessment. Groundwater near the top of the shallow water table and directly below occupied buildings could impact potential indoor air conditions through

vapor intrusion. The on-site residence (former Rose residence) was demolished in July 2009 and the draft institutional controls will require GE to receive approval from EPA and the State prior to site development. However, occupied residences are located nearby. If contaminated groundwater is migrating off site, it could migrate downgradient to current or future residential properties. An appropriate evaluation would be to compare on site groundwater data from overburden wells situated between the disposal area and the site boundary to the EPA's Office of Solid Waste and Emergency Response (OSWER) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* Table 2c, target groundwater concentrations, (EPA, 2002) for protection of indoor air. For contaminants with Table 2c values based on MCLs, inhalation risk-based values should be used. Overburden groundwater concentrations greater than the comparison values beyond the disposal area may be an indication of a future vapor intrusion pathway at downgradient residences. Concentrations below the comparison values would assure that the vapor intrusion pathway is not of concern.

The 2004 FYR examined June 2004 VOC groundwater data from well clusters MW-6 and MW-14 to evaluate the potential for vapor intrusion at the Rose residence. At the time, chlorobenzene and toluene were the only detected VOCs, with concentrations of each below the vapor intrusion screening levels. However, Fall 2008 groundwater monitoring data indicate VOCs, including PCE and TCE at MW-6 and benzene, PCE, TCE, and vinyl chloride within the disposal area at MW-12A, WCT-1, and WCT-MH, are currently present above current vapor intrusion screening values. Depth to the top of the water table at each of these locations is less than 10 feet. Because VOCs are not detected above vapor intrusion screening levels at wells located further downgradient, this potential pathway is currently incomplete; however, continued monitoring of shallow groundwater VOC concentrations against vapor intrusion screening levels is recommended to assure that this pathway remains incomplete.

Table 7-2
Comparison of 1988 and 2009 ROD-Specified Numerical, Chemical-Specific ARARs and Criteria for Surface Water and Sediment Chemicals of Concern[A]
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Chemical	Water Quality Criteria[D] Aquatic Life - Chronic				
	1988 (µg/L)	2004 (µg/L)	2004 Source	2009 (µg/L)	2009 Source[E]
COCs[B]					
t-1,2-Dichloroethylene	na	590	SCV	590	SCV
Ethylbenzene	na	290	ET Tier II	290	ET Tier II
PCBs	0.014	0.014	AWQC	0.014	AWQC
Tetrachloroethylene	840	120	ET Tier II	120	ET Tier II
Toluene	na	130	ET Tier II	130	ET Tier II
Trichloroethylene	21,900	350	ET Tier II	350	ET Tier II
Vinyl chloride	na	na	na	na	na
Other Site Contaminants[C]					
Benzene	NI	46	ET Tier II	46	ET Tier II
Carbon Disulfide	NI	0.92	SCV	0.92	SCV
Chlorobenzene	NI	130	ET Tier II	130	ET Tier II
o-Dichlorobenzene	NI	14	ET Tier II	14	ET Tier II
p-Dichlorobenzene	760	15	ET Tier II	15	ET Tier II
m-Dichlorobenzene	NI	71	ET Tier II	71	ET Tier II
1,2-Dichloroethane	NI	910	SCV	910	SCV
1,l-Dichloroethylene	NI	25	SCV	25	SCV
cis-1,2-Dichloroethylene	NI	590	SCV	590	SCV
2,4-Dimethylphenol	NI	na	na	na	na
Methylene chloride	NI	2200	SCV	2200	SCV
Naphthalene	NI	24	ET Tier II	24	ET Tier II
1,2,4Trichlorobenzene	NI	110	ET Tier II	110	ET Tier II
1,1,2-Trichloroethane	9400	1200	ET Tier II	1200	SCV
Xylenes	NI	13	SCV	13	SCV
Acetone	NI	ND	ND	1500	SCV

Notes:

[A] PCBs are COCs in sediment. As in 1988, there are currently no human health screening benchmarks or criteria available for evaluating PCBs. Sets of ecological screening benchmarks for PCBs which were not available in 1988 include NOAA ERLs and ERMs (Long et al., 1995; Long and Morgan, 1991) and Ontario Ministry of Environment and Energy LELs and SELs (Pasaud et al., 1993). PCB concentrations in sediment samples collected are compared to these benchmarks in Section 7.2.2.

[B] Chemicals of concern were drawn from the 1988 Record of Decision.

[C] Other chemicals detected as site contaminants, but not selected as Chemicals of Concern.

[D] US Environmental Protection Agency Water Quality Criteria or Lowest Observed Effects Levels

[E] Current ecological screening benchmarks:
1) USEPA Ambient Watar Quality Criteria (AWQC) (USEPA, 2002)
2) USEPA Ecotox Thresholds (ET) for SurfaceWater (USEPA, 1996)
3) Secondary Chronic Values (SCVs) for aquatic biota developed by Oak Ridge National Laboratory (Suter and Tsao, 1996).

na = Not Available
NI = Not identified in the 1988 ROD
ND = Non-Detect

The Endangerment Assessment evaluation of ecological risks concluded that contaminants in all media, including sediment, posed some level of risk to environmental receptors. Rose Pond sediments were excavated and the pond restored to its original wetland habitat during the source control remedial action, eliminating exposures to ecological receptors at Rose Pond. No sediment sampling has occurred since 2004. Sediment data from July 2004 were reviewed and compared to ecological benchmarks in the 2004 five year review. PCB concentrations exceeded benchmarks. Further evaluation of these results in a food chain model designed to evaluate potential risks to bats from ingestion of emerging insects at the streams indicated that PCBs in stream sediments were unlikely to pose a risk of harm via trophic transfer. Comparison of 1999 and 2004 sediment data indicated a downward trend in PCB concentrations. The continued collection, analysis and comparison of sediment samples to ecological benchmarks should be part of the periodic monitoring efforts at the site.

Potential groundwater contribution to surface water in streams and wetlands represents a pathway of potential concern for ecological receptors. Groundwater from four monitoring wells that are routinely sampled for VOCs and PCBs (MW-5, MW-8, E-7R, and WCT-1) represents water which has a slight potential of eventually discharging to surface water or wetlands because the wells are located outside or near the edge of the capture zones for the collection trenches. In order to screen for potential ecological risks resulting from this possible discharge pathway, fall 2008 groundwater monitoring data from those wells were diluted by a factor of 10 to account for groundwater discharge to surface water and compared to chronic water quality criteria protective of aquatic life. The diluted groundwater VOC and PCB concentrations are less than the chronic water quality criteria. This evaluation indicates that potential risks to aquatic life are negligible.

Changes in Toxicity and Other Contaminant Characteristics

Since the time of the original Endangerment Assessment performed in 1988, EPA has re-examined and updated human health toxicity factors for each of the indicator contaminants evaluated. In addition, since the 1988 ROD, toxicity factors used in developing MCLs and MCLGs, which were set as groundwater clean-up goals, have been updated for several of the contaminants. Table 7-3 presents toxicity factors used in the 1988 Endangerment Assessment, those in effect in 2004, and those currently in use in 2009. Changes in toxicity values between 2004 and 2009 are highlighted on the table. As noted in previous five year reviews, the

Endangerment Assessment provided quantitative evaluation of human health risks from just seven indicator contaminants. Toxicity factors for additional contaminants detected in groundwater either at the time of the RI or in more recent sampling are included in Table 7-3. Changes in these toxicity factors do not affect the remedy because the reasonably anticipated future land use has changed such that current cleanup levels are protective of human health and the environment, and institutional controls that are in the process of being implemented will reflect the current and reasonably anticipated future land use of commercial/industrial.

Table 7-3
Comparison of 1988, 2004, and 2009 Toxicity Values
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Chemical	Oral Reference Dose (RfD) (mg/kg/day)				Oral Cancer Slope Factor (CSF) $(mg/kg/day)^{-1}$			
	1988	2004	2009	2009 Source	1988	2004	2009	2009 Source
COCs[A]								
trans-1,2-Dichloroethylene	0.01	0.02	0.02	IRIS	N/A	N/A	N/A	
Ethylbenzene	0.1	0.1	0.1	IRIS	N/A	N/A	0.011	RSL-Cal EPA
PCBs	N/A	0.00002	0.00002	IRIS	4.34	2	2	IRIS
Tetrachloroethylene	0.02	0.01	0.01	IRIS	0.051	0.54	0.54	IRIS
Toluene	0.3	0.2	0.08	IRIS	N/A	N/A	N/A	
Trichloroethylene	0.0074	0.0003	N/A		0.011	0.4	0.013	RSL-Cal EPA
Vinyl chloride	0.013	0.003	0.003	IRIS	2.3	1.5	1.5	IRIS
Other Site Contaminants[B]								
Benzene	NI	0.004	0.004	IRIS	NI	0.055	0.055	IRIS
Carbon Disulfide	NI	0.1	0.1	IRIS	NI	N/A	N/A	
Chlorobenzene	NI	0.02	0.02	IRIS	NI	N/A	N/A	
o-Dichlorobenzene	NI	0.09	0.09	IRIS	NI	N/A	N/A	
p-Dichlorobenzene	NI	0.03	0.07	RSL-ATSDR	NI	N/A	0.0054	RSL-Cal EPA
m-Dichlorobenzene	NI	0.0009	N/A		NI	N/A	N/A	
1,2-Dichloroethane	NI	0.02	0.02	IRIS	NI	0.091	0.091	IRIS
1,1-Dichloroethylene	NI	0.05	0.05	IRIS	NI	N/A	N/A	
cis-1,2-Dichloroethylene	NI	0.01	0.01	IRIS	NI	N/A	N/A	
2,4-Dimethylphenol	NI	0.02	0.02	IRIS	NI	N/A	N/A	
Methylene chloride	NI	0.06	0.06	IRIS	NI	0.0075	0.0075	IRIS
Naphthalene	NI	0.02	0.02	IRIS	NI	N/A	N/A	
1,2,4-Trichlorobenzene	NI	0.01	0.01	IRIS	NI	N/A	0.0036	RSL-Cal EPA
1,1,2-Trichloroethane	NI	0.004	0.004	IRIS	NI	0.057	0.057	IRIS
Xylenes	NI	0.2	0.2	IRIS	NI	N/A	N/A	
Acetone	NI	--	0.9	IRIS	NI	N/A	N/A	

Notes:

[A] Chemicals of concern (COCs) were drawn from the 1988 Endangerment Assessment.

[B] Other chemicals are site contaminants detected in groundwater, but not selected as indicator contaminants of concern.

N/A = Not Applicable.

NI = Not identified in the 1988 ROD.

IRIS = EPA Integrated Risk Information System on-line database.

RSL-ATSDR = EPA Regional screening Level tables (April 2009) Agency for Toxic Substances and Disease Registry

RSL-Cal EPA = EPA Regional screening Level tables (April 2009) California Environmental Protection Agency

Changes in Risk Assessment Methods

Since the 1988 Endangerment Assessment and the 1988 ROD, changes have occurred in the formulas used to calculate human health risks from exposures to soil, sediment, groundwater, surface water, and air, as well as the methods for evaluating the vapor intrusion pathway. However, changes in human health risk assessment methods do not affect the remedy because of its reliance on an alternate safe drinking water source and prevention of direct contact with contaminated soil. The reasonably anticipated future land use of the site has changed such that residential use will be restricted; therefore, the PCB cleanup level of 13 ppm is protective, as only limited commercial/industrial use may be permitted with EPA and Mass DEP approval in areas other than the disposal area. In addition, GE must evaluate whether a vapor intrusion pathway exists prior to any building of structures on the site.

As stated above, the Endangerment Assessment evaluation of ecological risks was limited; however, methods of evaluating ecological risk used in the 2004 five year review remain valid.

New Contaminants and/or Contaminant Sources

One additional contaminant detected in recent groundwater sampling, acetone, was not listed in the ROD or 2004 FYR. Two contaminants that were detected in the most recent groundwater monitoring samples (Fall 2008), cis-1,2-DCE and1,2-DCA, were not listed as site contaminants in the ROD, but were identified in the 2004 FYR. No new contaminant sources have been identified since startup of the remedy. No toxic byproducts of the remedy were identified during the review; however, recent information has come to light that 1,4-dioxane, a breakdown product from trichloroethane, can be present in groundwater where trichloroethane exceeds the MCL. Therefore, it is recommended that this compound be included in the groundwater monitoring program to determine if it is present and if so, at what concentrations. Continued monitoring for these contaminants is recommended.

Expected Progress Towards Meeting RAOs

The RAOs set in the ROD were as follows:

- Prevent exposure to contaminated soils and groundwater;
- Protect uncontaminated groundwater and surface water for current and future use; and
- Restore contaminated soils and groundwater for future use.

The remedy is progressing as expected and the RAOs are being attained. The source control remedial activities, groundwater collection system, and groundwater extraction system have reduced the release of contaminants from the disposal area to groundwater, surface water, sediments, soils, and air. The source control remedial activities and fencing are preventing potential direct human contact with contaminated soils in the source area. However, an institutional control preventing excavation in the disposal area and residential use is not yet in place. The provision of the public water supply system to the site and nearby homes has reduced exposures to contaminated groundwater. The remediation of Rose Pond and declining contaminant concentrations in stream sediments and groundwater potentially contributing to surface water have reduced exposures to environmental receptors.

Contaminated groundwater migrating from the disposal area is being captured by the groundwater extraction trench collection system. Fall 2008 groundwater concentrations at and beyond the disposal area continue to exceed drinking water standards (MCLs) and vapor intrusion screening levels; however, concentrations of VOCs in site groundwater have generally decreased since implementation of the groundwater treatment system, and on-site wells downgradient of the disposal area do not exceed vapor intrusion screening levels. PCB concentrations in groundwater have been somewhat variable overtime, but show a generally declining trend. Evaluation of potential groundwater contribution to surface water in streams and wetlands through comparison of diluted groundwater data to chronic water quality criteria protective of aquatic life indicates that potential risks to aquatic life are negligible.

Institutional controls prohibiting groundwater use on-site or at neighboring properties are not yet in place; however they are currently being established in the form of a GERE at the site. The entire site is now owned by GE and the on-site residential structure has been demolished. Nearby residences are also served by the public water supply system.

MCLs and the provision of a safe drinking water supply for area residents are not designed to be protective of the vapor intrusion pathway. However, given the ongoing groundwater remediation activities and the declining trend in VOCs at the site wells, along with the fact that

VOCs have not been detected above vapor intrusion screening levels at on site downgradient wells between the site and the occupied residences, vapor intrusion does not currently appear to be a risk. Continued monitoring of groundwater between the disposal area and downgradient wells on site in order to assure that downgradient residents are not exposed to volatiles in groundwater through vapor intrusion is recommended.

7.3 Question C: Has Any Other Information Come To Light That Could Call Into Question the Protectiveness of the Remedy?

There is no other information that calls into question the protectiveness of the remedy.

7.4 Technical Assessment Summary

According to the data reviewed, the site inspection, and the interviews, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy; in fact, the recent acquisition of the remainder of the Site by GE and recent demolition of the Rose residence adds to the protectiveness of the Site by streamlining the placement of a deed restriction and preventing residential use. The ARARs identified in the ROD remain applicable or relevant and appropriate and either have been met or are being complied with. Institutional controls need to be implemented for the remedy to be protective in the long term.

8.0 ISSUES

This section provides a summary of the issues identified during this third FYR. Recommendations and follow-up actions are presented in Section 9.0.

Table 8-1
Issues
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Although GE currently owns the entire Site and maintains the fencing and provides security, legally enforceable Institutional Controls are not yet in place. Institutional Controls are required to provide long-term protectiveness.	N	Y
While not an issue in the area downgradient of the site, VOCs are currently present above current vapor intrusion screening values in the overburden groundwater within and around disposal area.	N	Y
There have been changes to MCLs and other health-based cleanup standards and surface water quality standards since the last five year review.	N	N

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

The following is a summary of recommendations and follow-up actions that are proposed for the Site.

Table 9-1
Recommendations and Follow-Up Actions
F.T. Rose Disposal Pit Superfund Site
Lanesborough, Massachusetts

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Although GE currently owns the entire Site and maintains the fencing and provides security, legally enforceable Institutional Controls are not yet in place. Institutional Controls are required to provide long-term protectiveness	Complete execution and recording of the GERE which will implement institutional controls to prevent groundwater use and excavation into the saturated zone within the disposal area. Institutional controls will include additional restrictions to prevent residential use of the site, require approval from EPA and the State prior to site development and maintenance of the soil cover at the site. The GERE will include provisions for inspection of the soil cover at the site as part of the site inspection checklist to ensure no disturbance to the soil cover in the disposal area. An institutional control is also necessary on the Balance Rock Park property to ensure the integrity of the eastern trench and associated monitoring well located on that property.	PRP	EPA	Within 12 months from the submittal date of this five year review	N	Y
While not an issue in the area downgradient of the site, VOCs are currently present above current vapor intrusion screening values in the overburden groundwater within and around disposal area.	Because VOCs are not detected above vapor intrusion screening levels at wells located further downgradient, this potential pathway is currently incomplete; however, continued monitoring of shallow groundwater VOC concentrations against vapor intrusion screening levels is recommended to assure that this pathway remains incomplete.	PRP	EPA	On-going	N	Y
There have been changes to MCLs and other health-based cleanup standards and surface water quality standards since the last five year review.	Evaluate and issue, if necessary, future decision document to note change in MCLs, surface water quality standards, and reasonably anticipated future land use (no longer for residential purposes).	PRP	EPA	Within 12 months from the submittal date of this five year review	N	N

10.0 PROTECTIVENESS STATEMENTS

The remedy at the F. T. Rose Disposal Pit Superfund Site currently protects human health and the environment because access to the disposal area of the Site is restricted through fencing to prevent excavation into the disposal area, and with the availability of public water, the groundwater is not being used and ongoing management of migration and groundwater monitoring will continue until MCLs are met. In addition, soils in the saturated zone exceeding the PCB cleanup levels have a soil cover in place to prevent dermal contact and the only residence on the site has been demolished. However, in order for the remedy to be protective in the long term, institutional controls to prevent groundwater use are required. Institutional controls are also required for the disposal area to prevent excavation in this area. These controls will also prohibit residential use and require approval from EPA and the State prior to any site development.

11.0 NEXT REVIEW

A fourth FYR for the F.T. Rose Disposal Pit Superfund Site will be conducted in 2014. The target completion date is five years from the approval of this third FYR.

FIGURES

NORTH

USGS TOPOGRAPHIC MAP

PITTSFIELD, MASSACHUSETTS

1988

APPROXIMATE SCALE
1 INCH = 2,000 FEET

Nobis

Nobis Engineering, Inc.
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www.nobisengineering.com

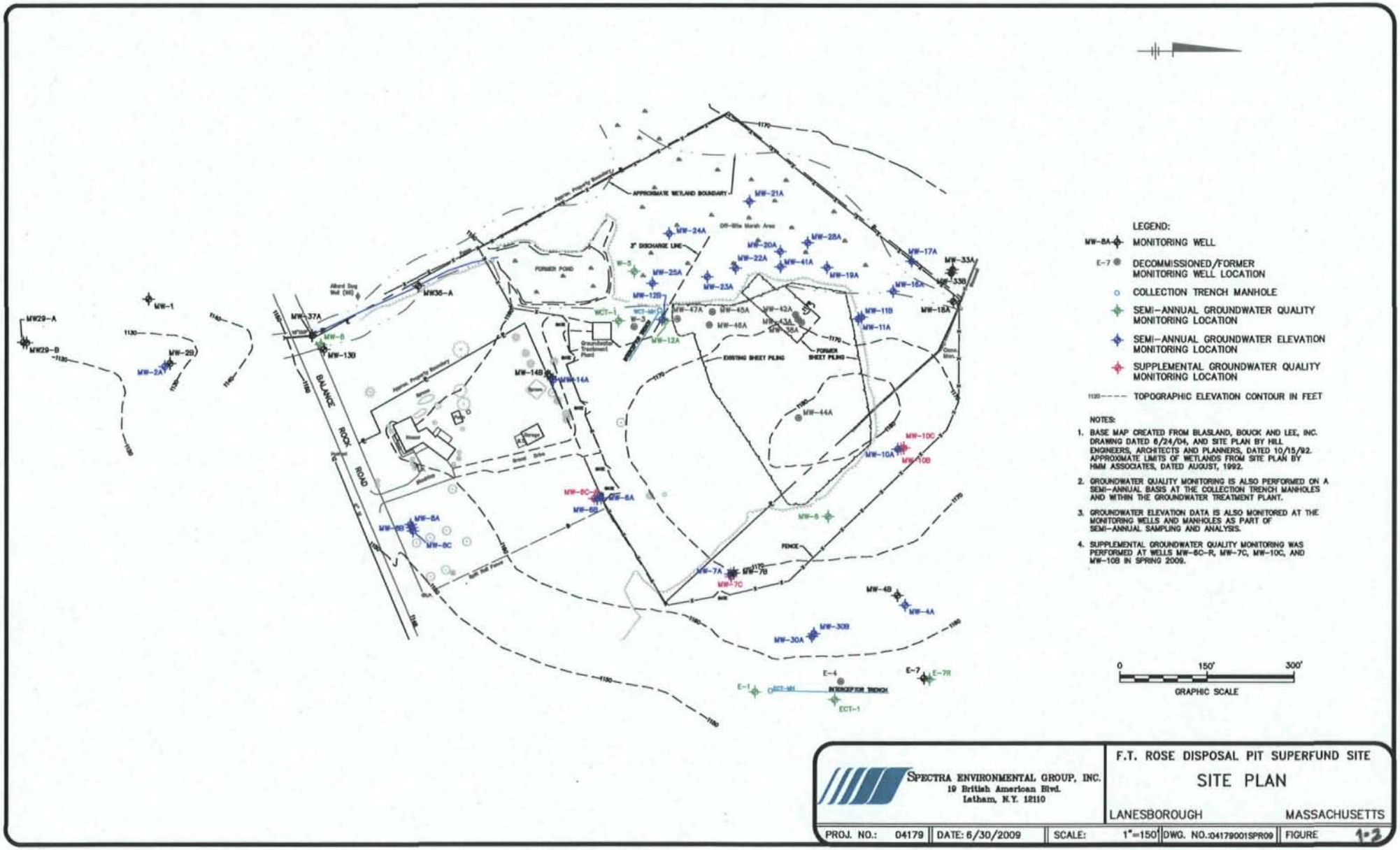
QUADRANGLE LOCATION

FIGURE 1-1

LOCUS PLAN
F.T. ROSE DISPOSAL PIT SUPERFUND SITE
BALANCE ROCK ROAD
LANESBOROUGH, MASSACHUSETTS

PROJECT: 80044.06

SEPTEMBER 2009



SPECTRA ENVIRONMENTAL GROUP, INC.
19 British American Blvd.
Latham, N.Y. 12110

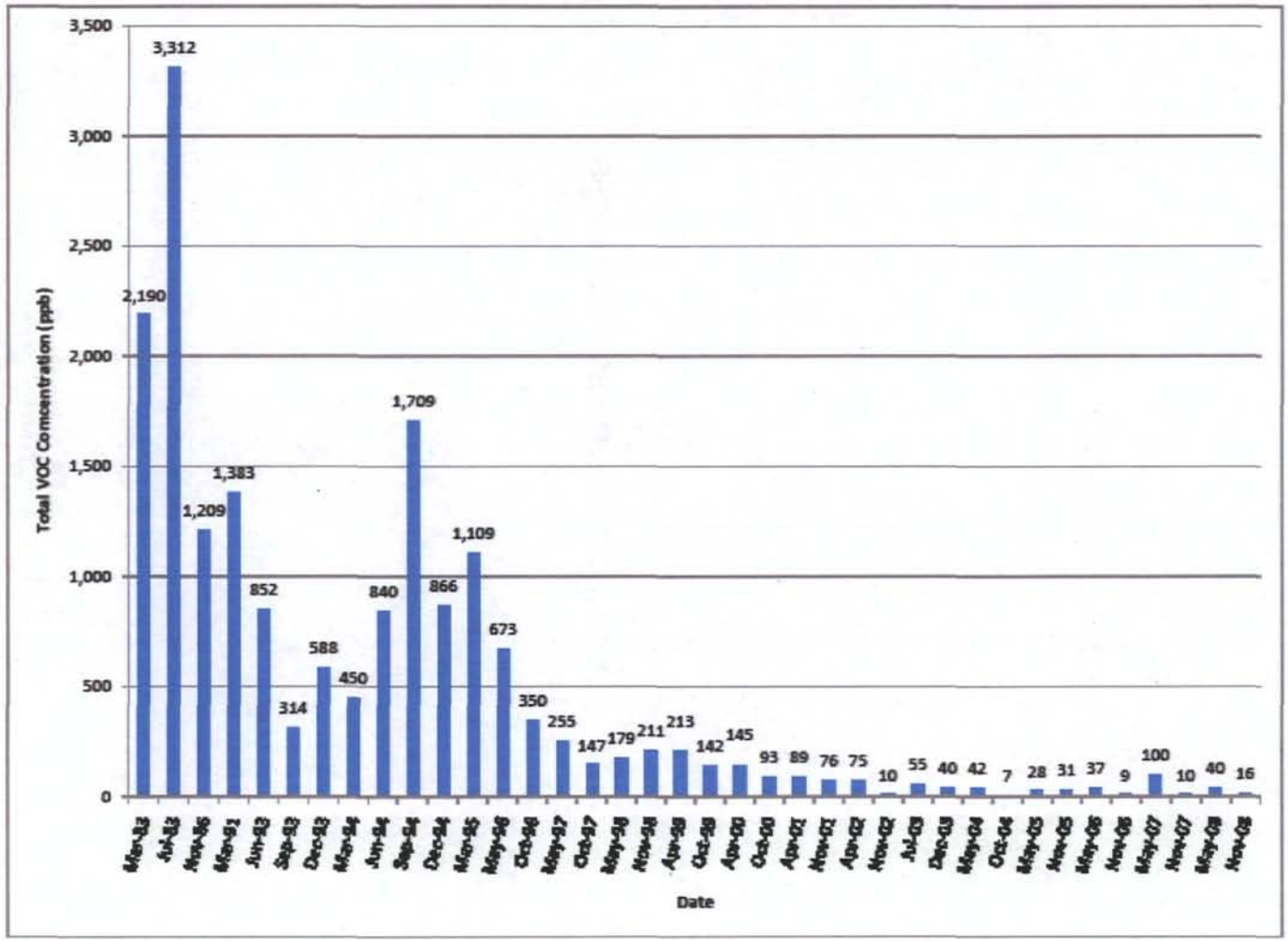
F.T. ROSE DISPOSAL PIT SUPERFUND SITE

SITE PLAN

LANESBOROUGH MASSACHUSETTS

PROJ. NO.: 04179	DATE: 6/30/2009	SCALE: 1"=150'	DWG. NO.:04179001SPR09	FIGURE 1-2

FIGURE 6-1
MW-6 HISTORICAL TOTAL VOC CONCENTRATIONS
F.T. ROSE DISPOSAL PIT SUPERFUND SITE
LANESBOROUGH, MASSACHUSETTS



APPENDIX A

DOCUMENTS REVIEWED/REFERENCES

DOCUMENTS REVIEWED/REFERENCES CITED

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APPENDIX B

PHOTOS DOCUMENTING SITE CONDITIONS

Photo Number 1 – View of the former Rose Residence before demolishing. Date: June 9, 2009

Photo Number 2 – View of the former Rose Residence after demolishing. Date: August 20, 2009

Photo Number 3 – Entrance to fenced-in portion of the Site. Date: June 9, 2009

Photo Number 4 – Front of Groundwater Treatment Plant (GWTP). Date: June 9, 2009

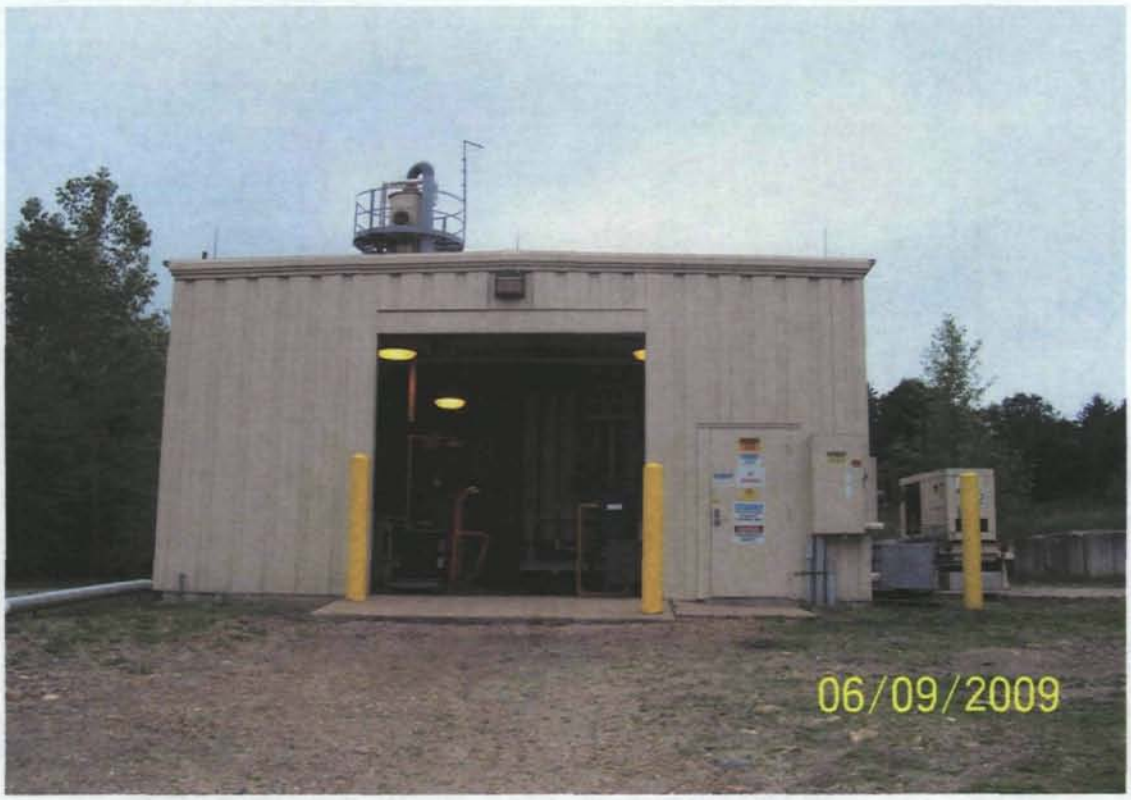


Photo Number 5 – Vapor-phase carbon adsorption units and associated piping. Date: June 9, 2009

Photo Number 6 – Vapor-phase carbon adsorption units and associated piping. Date: June 9, 2009

Photo Number 7 – Pressure Gauge. Date: June 9, 2009

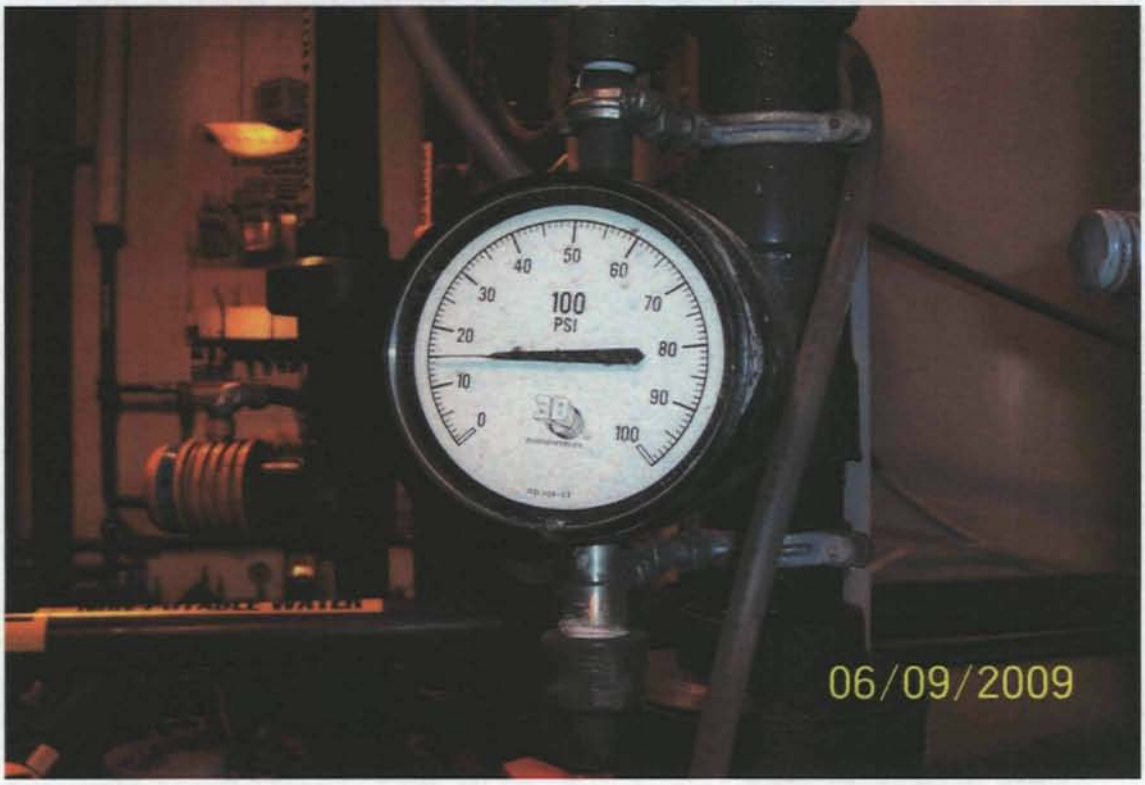


Photo Number 8 – Secondary vapor-phase carbon adsorption unit. Date: June 9, 2009

Photo Number 9 – Liquid-phase carbon adsorption units and associated piping. Date: June 9, 2009

Photo Number 10 – Liquid-phase carbon adsorption units. Date: June 9, 2009

Photo Number 11 – Air stripper tower in rear of GWTP. Date: June 9, 2009

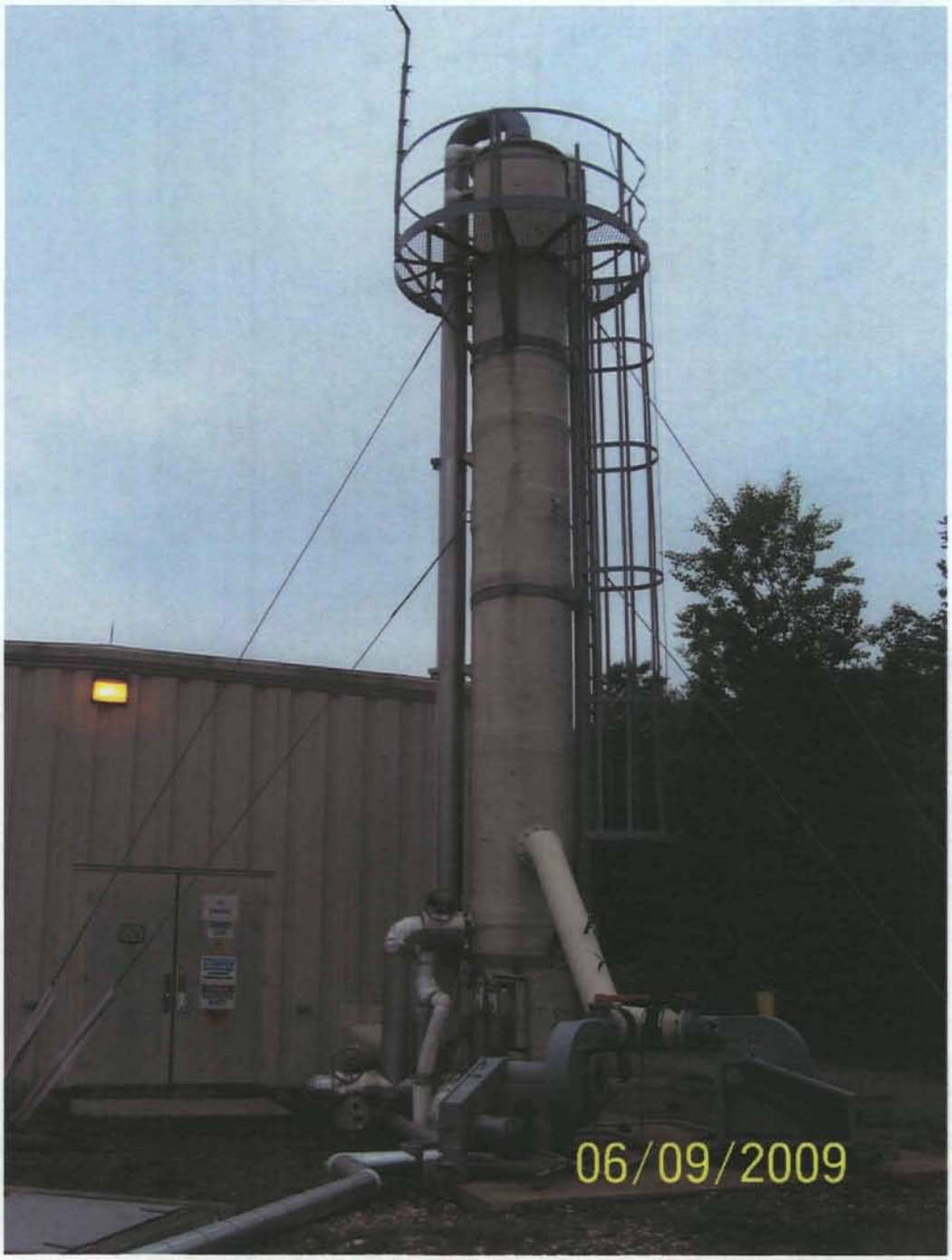


Photo Number 12 – View of East Collection Trench Man Hole. Date: June 9, 2009

Photo Number 13 – View of West Collection Trench Man Hole and GWTP effluent discharge pipe to adjacent wetland. Date: June 9, 2009

Photo Number 14 – View of West Collection Trench looking North. Date: June 9, 2009

Photo Number 15 – Advisory sings on rear entrance of GWTP. Date: June 9, 2009

APPENDIX C

SITE INSPECTION CHECKLIST

Site Inspection Checklist

I. SITE INFORMATION	
Site name: F.T. Rose Disposal Pit Superfund Site	**Date of inspection:** June 9, 2009
Location and Region: Lanesborough, MA, Region 1	**EPA ID:** MAD980524169
Agency, office, or company leading the five-year review: EPA, Nobis Engineering, Inc.	**Weather/temperature:**

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☑ Institutional controls
- ☑ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☑ Other DNAPL trench collection
- ☐ Monitored natural attenuation
- ☑ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached

2. **O&M staff** _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _Massachusetts Department of Environmental Protection

Contact _Paul Craffey_____ NPL Site Manager 06/09/09 617-292-5591

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached

_____

_____

Agency _____

Contact _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached

_____

_____

Agency _____

Contact _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached

_____

_____

Agency _____

Contact _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached

_____

_____

4. **Other interviews** (optional) ☐ Report attached.

Bob Mallache (Regional Director – Mass Department of Conservation and Recreation); John Levesque (Man-

ager of Environmental Operations – GE); Nick Smith (Senior Scientist – Arcadis); John Ciampa (Director of

Environmental Operations – Spectra Environmental); John Macht (Town of Lanesborough Resident)

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☑ O&M manual	☑ Readily available	☑ Up to date	☐ N/A
☑ As-built drawings	☑ Readily available	☑ Up to date	☐ N/A
☑ Maintenance logs	☑ Readily available	☑ Up to date	☐ N/A

Remarks _____

_____

2. **Site-Specific Health and Safety Plan** ☑ Readily available ☑ Up to date ☐ N/A

☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A

Remarks _____

_____

3. **O&M and OSHA Training Records** ☑ Readily available ☑ Up to date ☐ N/A

Remarks _____

_____

4. **Permits and Service Agreements**

☐ Air discharge permit ☐ Readily available ☐ Up to date ☑ N/A

☐ Effluent discharge ☐ Readily available ☐ Up to date ☑ N/A

☐ Waste disposal, POTW ☑ Readily available ☑ Up to date ☐ N/A

☐ Other permits_RCRA Part B_____ ☐ Readily available ☐ Up to date ☑ N/A

Remarks: RCRA permit is for the GE facility (not the Rose site in particular). Wastes from Rose (spent carbon, DNAPL) are stored at GE facility prior to off-site disposal at Model City or Port Arthur, TX facilities. Manifests for waste disposal were available and up to date.

5. **Gas Generation Records** ☐ Readily available ☐ Up to date ☑ N/A

Remarks_____

_____

6. **Settlement Monument Records** ☐ Readily available ☐ Up to date ☑ N/A

Remarks_____

_____

7. **Groundwater Monitoring Records** ☑ Readily available ☑ Up to date ☐ N/A

Remarks: See 2005 through 2008 Groundwater Semi-Annual Monitoring Reports.

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☑ N/A

Remarks_____

_____

9. **Discharge Compliance Records**

☑ Air ☑ Readily available ☑ Up to date ☐ N/A

☑ Water (effluent) ☑ Readily available ☑ Up to date ☐ N/A

Remarks_See monthly O&M Reports.

_____

_____

10. **Daily Access/Security Logs** ☑ Readily available ☑ Up to date ☐ N/A

Remarks_Reviewed on site at GWTP

_____

_____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State

☐ PRP in-house ☑ Contractor for PRP

☐ Federal Facility in-house ☐ Contractor for Federal Facility

☐

Other_____

_____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place

Original O&M cost estimate_____ ☐ Breakdown attached

NOTE: O & M costs are not available because PRP prefers not to disclose this information.

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached

Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached

Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached

Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached

Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached

Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _NA – PRP prefers not to disclose or discuss O&M costs._

V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☑ Gates secured ☐ N/A

Remarks__No fence damage noted _____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks__Signage is in good condition and appears to be up to date.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☑ Yes ☐ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☑ N/A

NOTE: Institutional controls have not been fully implemented yet. They are not in place yet for soil or groundwater; however, a draft GERE is being reviewed by EPA and Mass DEP which will prevent soil excavation and groundwater use, and restrict residential use at the site. The PRP owns the entire site property and access is controlled by a fence. The PRP does not have any plans to transfer property.

Type of monitoring (*e.g.*, self-reporting, drive by) _____

Frequency _____

Responsible party/agency _____

Contact _____

Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☑ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☑ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☑ No ☐ N/A

Violations have been reported ☐ Yes ☑ No ☐ N/A

Other problems or suggestions: ☐ Report attached

See above; Institutional controls not yet fully implemented, although site access is controlled.

2. **Adequacy** ☑ ICs are adequate* ☐ ICs are inadequate ☐ N/A

Remarks: * ICs are expected to be adequate when fully implemented. Complete implementation is a priority issue for this five year review.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident

Remarks___No evidence of trespassing or vandalism noted_____

_____

2. **Land use changes on site** ☑N/A

Remarks___No changes

_____

_____

3. **Land use changes off site** ☑ N/A

Remarks___No changes

_____

_____

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☑ Roads adequate ☐ N/A

Remarks_____

_____

B. Other Site Conditions

Remarks: Site access is through the former Rose Property (currently owned by GE).

VII. LANDFILL COVERS ☐ Applicable ☑ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident

Areal extent_____ Depth_____

Remarks_____

_____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident

Lengths_____ Widths_____ Depths_____

Remarks_____

_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Areal extent_____ Depth_____

Remarks_____

_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident

Areal extent_____ Depth_____

Remarks_____

_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress

☐ Trees/Shrubs (indicate size and locations on a diagram)

Remarks_____

_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A

Remarks_____

_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident

Areal extent_____ Height_____

Remarks_____

_____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident

☐ Wet areas ☐ Location shown on site map Areal extent_____

☐ Ponding ☐ Location shown on site map Areal extent_____

☐ Seeps ☐ Location shown on site map Areal extent_____

☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability

Areal extent_____

Remarks_____

_____

B. Benches ☐ Applicable ☐ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

C. Letdown Channels ☐ Applicable ☐ N/A
Remarks_____

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
   Areal extent_____ Depth_____
   Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
   Material type_____ Areal extent_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
   Areal extent_____ Depth_____
   Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
   Areal extent_____ Depth_____
   Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions

☐ Location shown on site map Areal extent_____

Size_____

Remarks_____

_____

6. **Excessive Vegetative Growth** Type_____

☐ No evidence of excessive growth

☐ Vegetation in channels does not obstruct flow

☐ Location shown on site map Areal extent_____

Remarks_____

_____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs Maintenance

☐ N/A

Remarks_____

_____

2. **Gas Monitoring Probes**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

3. **Monitoring Wells** (within surface area of landfill)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

4. **Leachate Extraction Wells**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A

Remarks_____

_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**

☐ Flaring ☐ Thermal destruction ☐ Collection for reuse

☐ Good condition ☐ Needs Maintenance

Remarks_____

_____

2. **Gas Collection Wells, Manifolds and Piping**

☐ Good condition ☐ Needs Maintenance

Remarks_____

_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)

☐ Good condition ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A

Remarks_____

_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A

Remarks_____

_____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A

☐ Siltation not evident

Remarks_____

_____

2. **Erosion** Areal extent_____Depth_____

☐ Erosion not evident

Remarks_____

_____

3. **Outlet Works** ☐ Functioning ☐ N/A

Remarks_____

_____

4. **Dam** ☐ Functioning ☐ N/A

Remarks_____

_____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident

Horizontal displacement_____ Vertical displacement_____

Rotational displacement_____

Remarks_____

_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident

Remarks_____

_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Areal extent_____ Depth_____

Remarks_____

_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

☐ Vegetation does not impede flow

Areal extent_____ Type_____

Remarks_____

_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Areal extent_____ Depth_____

Remarks_____

_____

4. **Discharge Structure** ☐ Functioning ☐ N/A

Remarks_____

_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☑ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident

Areal extent_____ Depth_____

Remarks_____

_____

2. **Performance Monitoring** Type of monitoring_____

☐ Performance not monitored

Frequency_____ ☐ Evidence of breaching

Head differential_____

Remarks_____

_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☑ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☑ Applicable ☐ N/A

1. Pumps, Wellhead Plumbing, and Electrical

☑ Good condition ☑ All required wells properly operating ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

_____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☑ Good condition ☐ Needs Maintenance

Remarks_____

_____

3. Spare Parts and Equipment

☑ Readily available ☑ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks_____

_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A

1. Collection Structures, Pumps, and Electrical

☐ Good condition ☐ Needs Maintenance

Remarks_____

_____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☐ Good condition ☐ Needs Maintenance

Remarks_____

_____

3. Spare Parts and Equipment

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks_____

_____

C. Treatment System ☑ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

☑ Air stripping ☑ Carbon adsorbers (both vapor and liquid phase carbon)

☐

Filters_____

☐ Additive (*e.g.*, chelation agent, flocculent)_____

☑ Others_____

☑ Good condition ☐ Needs Maintenance

☑ Sampling ports properly marked and functional

☑ Sampling/maintenance log displayed and up to date

☑ Equipment properly identified

☑ Quantity of groundwater treated annually: 70 gpm continuous = 36.8 million gallons per year

☑ Quantity of surface water treated annually__not applicable_____

Remarks_____

_____

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐ N/A ☑ Good condition ☐ Needs Maintenance

Remarks_____

_____

3. **Tanks, Vaults, Storage Vessels**

☐ N/A ☑ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

Remarks_____

_____

4. **Discharge Structure and Appurtenances**

☐ N/A ☑ Good condition ☐ Needs Maintenance

Remarks_____

_____

5. **Treatment Building(s)**

☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair

☑ Chemicals and equipment properly stored

Remarks_____

_____

6. **Monitoring Wells** (pump and treatment remedy)

☑ Properly secured/locked ☐ Functioning ☑ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Remarks: A subset of 8 wells is routinely sampled with results presented in semi-annual monitoring reports

D. Monitoring Data

1. Monitoring Data

☑ Is routinely submitted on time ☑ Is of acceptable quality

2. Monitoring data suggests:

☑ Groundwater plume is effectively contained ☑ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☑ N/A

Remarks_____

_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Soil remedy has been completed and groundwater is ongoing. Objective is to remediate groundwater to MCLs.

DNAPL presence continues, suggesting the remedy will need to remain in operation for a longer period of time. However, some contaminant concentrations (VOCs) have been decreasing. Trends for PCBs are not evident although the frequency of detection appears to have decreased based on 2007 and 2008 data. Except for the instance in July 2009, when the monthly DNAPL recovery volume increased to 42.5 gallons, the quantity of DNAPL collected appears to be declining. The GWTP is in good condition. Institutional controls are not fully implemented. This is a priority issue to be completed before the next five year review.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

No issues noted. Facility is well-run and some process improvements have been put in place over the years (3 carbon vessels in series, program improvements). Plant is visited daily and is alarmed. Plant is automated in terms of process and daily visits are sufficient to allow for smooth operation. Major routine maintenance items are changeout of carbon, acid washing of air stripper packing, and replacement of packing.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None noted.

PRP prefers not to disclose cost information.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Potentially reducing the number of sampling points where results continue to demonstrate non-detects would reduce overall project costs and save time. Improvements in the vapor-phase carbon system have been made (upgrade to 3 vessels in series with lead-lag switching possible, to better utilize the carbon). Low-flow sampling methods have been implemented for groundwater monitoring.

APPENDIX D

INTERVIEW RECORD

INTERVIEW RECORD – STATE AND LOCAL COSIDERATIONS

Site Name: Rose Disposal Pit Superfund Site		**EPA ID No.:** MAD980524169
Subject: Third Five-Year Review (2009)		**Time:** 14:50 **Date:** June 9, 2009
Type: ☐ Telephone ☒ Visit ☐ Other **Location of Visit:**		☐ Incoming ☐ Outgoing
Contact Made By:		
Name: Melissa Taylor	**Title:** Remedial Project Manager	**Organization:** EPA
Individual Contacted:		
Name: Paul Craffey	**Title:** NPL Site Manager	**Organization:** MADEP
Telephone No: 617-292-5591 **Fax No:** 617-556-1049 **E-Mail Address:** paul.craffey@state.ma.us		**Street Address:** One Winter Street **City, State, Zip:** Boston, Massachusetts 02108

Summary Of Conversation

Q: What is your overall impression of the project?
A: It's running fine. I review the monthly reports. I receive quick responses to questions.

Q: Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.
A: Not to my knowledge. None from Boston or regional office.

Q: Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.
A: No, not to my knowledge.

Q: Do you feel well informed about the site's activities and progress?
A: Yes, I review the monthly reports.

Q: Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
A: Nothing operationally. Reporting may be able to be reduced to quarterly O & M, rather than monthly. Decreasing of reporting and monitoring.

INTERVIEW RECORD – STATE AND LOCAL COSIDERATIONS

Site Name: Rose Disposal Pit Superfund Site		**EPA ID No.:** MAD980524169
Subject: Third Five-Year Review (2009)	**Time:** 15:00	**Date:** June 9, 2009
Type: ☐ Telephone ☒ Visit ☐ Other **Location of Visit:**	☐ Incoming	☐ Outgoing

Contact Made By:

Name: Melissa Taylor	**Title:** Remedial Project Manager	**Organization:** EPA

Individual Contacted:

Name: Bob Mallache	**Title:** Regional Director	**Organization:** DCR

Telephone No: 617-626-1250 **Fax No:** 617-626-1351 **E-Mail Address:** mass.parks@state.ma.us	**Street Address:** 251 Causeway Street, Suite 600 **City, State, Zip:** Boston, MA 02114-2104

Summary Of Conversation

Q: What is your overall impression of the project?
A: It's had very little impact on DCR's operations at Balance Rock State Park. Nothing out of the ordinary in the field.

Q: Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.
A: No. This was my first visit to the site.

Q: Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.
A: No.

Q: Do you feel well informed about the site's activities and progress?
A: Somewhat. Today's site visit was helpful.

Q: Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
A: No. People who visit Balance Rock State Park are not even aware of the site.

Q: What is your overall impression of the project?
A: It's running well. Nothing out of the ordinary; no upsets.

Q: Is the remedy functioning as expected? How well is the remedy performing?
A: It's functioning as expected. We're seeing levels drop.

Q: What does the monitoring data show? Are there any trends that show contaminant levels are decreasing?
A: Levels of PCBs and VOCs are decreasing; yes.

Q: Is there a continuous on-site O&M presence? If so, please describe staff and activities. If there is not a continuous on-site presence, please describe staff and frequency of site inspections and activities.
A: Yes. Veloia Water is available 24 hours a day, 7 days a week. Daily inspections are conducted

Q: Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.
A: No, not in the last five years. The only change prior was from rental to permanent carbon units.

Q: Have there been unexpected O&M difficulties or costs at the site since start-up or in the last five years? If so, please give details.
A: Not in the last five years. The only difficulty prior was when DNAPL entered the plant leading to a temporary system shut-down for cleanup.

Q: Have there been opportunities to optimize O&M, or sampling efforts? Please describe changes and results or desired cost savings or improved efficiency.
A: No. Sampling programs have remained the same. No system changes or replacements in the last five years. There have been no technology changes.

Q: Do you have any comments, suggestions, or recommendations regarding the project?
A: No. Everything is functioning properly. May be possible to reduce the number of monitoring points because some wells continue to show non-detects.

Q: Have institutional controls been implemented to prevent groundwater use and excavation into the saturated zone within the disposal area as specified in the 1988 ROD?
A: No, they are in progress. There are no formal institutional controls, but GE is constantly making sure site is secure and controlled around fence line to limit outside access.

INTERVIEW RECORD – COMMUNITY REPRESENTATIVES

Site Name: Rose Disposal Pit Superfund Site		**EPA ID No.:** MAD980524169	
Subject: Third Five-Year Review (2009)		**Time:**	**Date:**
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**		☐ Incoming ☐ Outgoing	
Contact Made By:			
Name: Melissa Taylor	**Title:** RPM	**Organization:** EPA	
Individual Contacted:			
Name: Mr. John Macht	**Title:** Adjacent Resident	**Organization:**	
Telephone No: 413-281-9052 (cell) **Fax No:** 412-443-8667 **E-Mail Address:** n/a		**Street Address:** 121 Balance Rock Road **City, State, Zip:** Lanesborough, Massachusetts	
Summary Of Conversation			

Q What is your overall impression of the project?
A: Partially pleased & partially displeased. Pleased regarding remediation of contamination & GE has done a good job of housekeeping on property. Displeased as to how GE plans to leave site when done -- he stated that GE agreed to remove excess soil that consists of an 8-10 ft berm adjacent to his property, but they have not done so to date. The soil berm is adjacent to one of his other properties at 114/116 Balance Rock Road.

Q: What effects have site operations had on the surrounding community?
A: Mr. Macht indicated that he has been trying to sell one of his properties at 125 Balance Rock Road for 3 years to no avail. He said that any prospective buyers are not interested nor are local real estate agents because of the property's proximity to the Rose Superfund Site. He asked for a "comfort letter" from EPA that indicates that there is no contamination on his property relating to the site and that the site has been cleaned up with the exception of the ground water remediation.

Q: Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.
A: Nothing regarding the site's operation or administration, only concern is with the lasting legacy the site will have on the surrounding community. He is also concerned about what condition the Rose residential parcel will be left in once the house is razed. Some community members have told him they would like to see a playground put there. His recommendation was to turn it over to the state once the cleanup was complete and have it become a part of the adjacent state forest.

Q: Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.
A: no.

Q: Do you feel well informed about the site's activities and progress?
A: He said he has not had the desire or opportunity to know much. Cleanup of the groundwater is taking much longer than originally anticipated by GE.

Q: Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
A: Removing soil berm in back of his property is main issue.

INTERVIEW RECORD – COMMUNITY REPRESENTATIVES

Site Name: Rose Disposal Pit Superfund Site		**EPA ID No.:** MAD980524169
Subject: Third Five-Year Review (2009)		**Time:** 4pm **Date:** 7/29/09
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**		☐ Incoming ☒ Outgoing

Contact Made By:

Name: Jeff McCullough	**Title:** Sr. Project Manager	**Organization:** Nobis Engineering

Individual Contacted:

Name: Paul Boudreau	**Title:** Town Administrator	**Organization:** Town of Lanesborough
Telephone No: 413-442-0965 **Fax No:** **E-Mail Address:** adminlan@verizon.net		**Street Address:** 83 N. Main Street **City, State, Zip:** Lanesborough, MA 01237

Summary Of Conversation

Q What is your overall impression of the project?
A: None, do not have enough information to make a judgment of the project.

Q: What effects have site operations had on the surrounding community?
A: None. Not aware of any resident complaints.

Q: Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.
A: None.

Q: Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give details.
A: None that the Town is aware of.

Q: Do you feel well informed about the site's activities and progress?
A: No, not really. Town has not received a lot of information regarding the progress of the site and would like to be more informed in the future.

Q: Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
A: None.

INTERVIEW RECORD – PRP REPRESENTATIVE(S)

Site Name: Rose Disposal Pit		**EPA ID No.:** MAD980524169	
Subject: Third Five-Year Review (2009)		**Time:** 15:15	**Date:** June 9, 2009
Type: ☐ Telephone ☒ Visit ☐ Other **Location of Visit:**		☐ Incoming ☐ Outgoing	
Contact Made By:			
Name: Melissa Taylor	**Title:** Remedial Project Manager	**Organization:** EPA	
Individual Contacted:			
Name: John Levesque (GE) Nick Smith (Arcadis) John Ciampa (Spectra Environmental)	**Title:** Manager of Environmental Operations Senior Scientist Director of Environmental Remediation	**Organization:** General Electric - Contractors	
Telephone No: **Fax No:** **E-Mail Address:**		**Street Address:** 159 Plastics Avenue **City, State, Zip:** Pittsfield, MA 01201	
Summary Of Conversation			

APPENDIX E

SUPPLEMENTAL FIGURES

dcr
Massachusetts

September 21, 2009

Mr. John J. Levesque
Manager – Environmental Operations
Corporate Environmental Programs
General Electric Company
159 Plastics Ave.
Pittsfield, MA 01201

Re: Balance Rock State Park – General Electric (GE) Environmental Remediation Activities

Dear Mr. Levesque:

As you are aware, GE previously received permission from the Massachusetts Department of Conservation and Recreation (DCR) to conduct activities in connection with the environmental remediation of the F.T. Rose Superfund Site. GE currently pumps water from a groundwater collection trench on State property (near the eastern border of the F.T. Rose Site), and transfers that water through underground pipes to a treatment facility on GE property. Additionally, GE measures the groundwater levels and water quality from several existing monitoring wells that are on State property, near the collection trench. This letter confirms that GE has continued permission to operate and maintain the collection trench, and to perform periodic sampling activities at the existing groundwater monitoring wells.

With regard to groundwater usage, the DCR does not currently have or operate any groundwater supply wells on this property and we have no plans at this time to install such wells. In the event that a groundwater supply well becomes necessary in the future, we will contact your office and the U.S. Environmental Protection Agency Superfund program office in Boston.

Yours truly,

Robert S. Mellace
West Region Director

cc: Ms. Melissa Taylor, USEPA

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

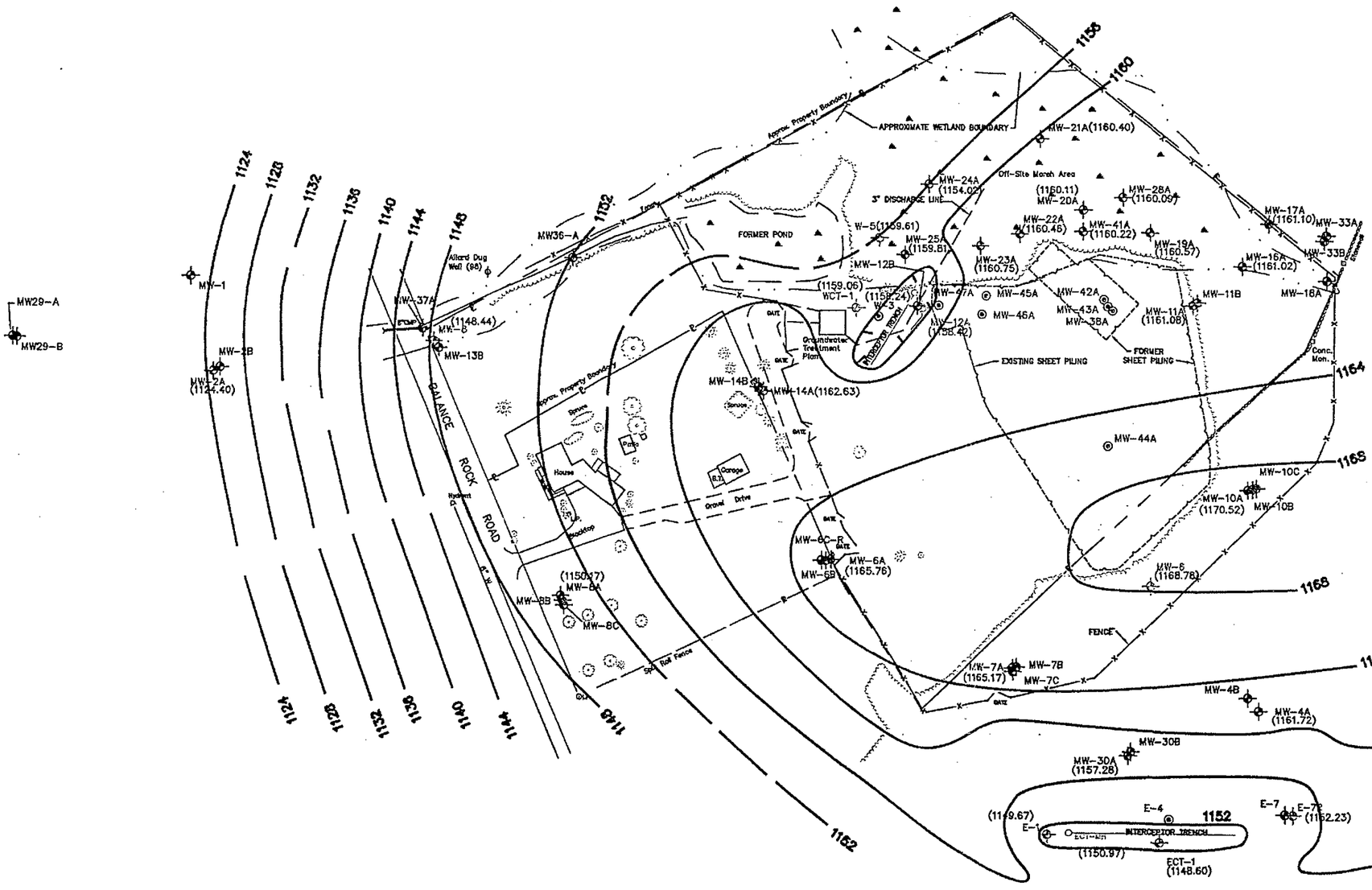
Department of Conservation and Recreation
740 South Street, PO Box 1433
Pittsfield MA, 01202-1433
413-442-8928 413-442-5860 Fax
www.mass.gov/dcr

Deval L. Patrick
Governor

Timothy P. Murray
Lt. Governor

Ian A. Bowles, Secretary, Executive
Office of Energy & Environmental Affairs

Richard K. Sullivan, Jr., Commissioner
Department of Conservation & Recreation



LEGEND:

- MW-8A — MONITORING WELL
- E-7 — DECOMMISSIONED/FORMER MONITORING WELL LOCATION
- COLLECTION TRENCH MANHOLE
- SEMI-ANNUAL GROUNDWATER QUALITY MONITORING LOCATION
- SEMI-ANNUAL GROUNDWATER ELEVATION MONITORING LOCATION
- 1120 ----- TOPOGRAPHIC ELEVATION CONTOUR IN FEET
- GROUNDWATER ELEVATION CONTOUR IN FEET (DASHED WHERE INFERRED)
- (1167.47) GROUNDWATER ELEVATION IN FEET

NOTES:

1. BASE MAP CREATED FROM BLASLAND, BOUCK AND LEE, INC. DRAWING DATED 6/24/04, AND SITE PLAN BY HILL ENGINEERS, ARCHITECTS AND PLANNERS, DATED 10/15/92. APPROXIMATE LIMITS OF WETLANDS FROM SITE PLAN BY HMM ASSOCIATES, DATED AUGUST, 1992.
2. GROUNDWATER QUALITY MONITORING IS ALSO PERFORMED ON A SEMI-ANNUAL BASIS AT THE COLLECTION TRENCH MANHOLES AND WITHIN THE GROUNDWATER TREATMENT PLANT.
3. GROUNDWATER ELEVATION DATA IS ALSO MONITORED AT THE MONITORING WELLS AND MANHOLES AS PART OF SEMI-ANNUAL SAMPLING AND ANALYSIS.
4. GROUNDWATER ELEVATION MEASUREMENTS WERE OBTAINED ON NOVEMBER 3, 2008.

0 150' 300'

GRAPHIC SCALE

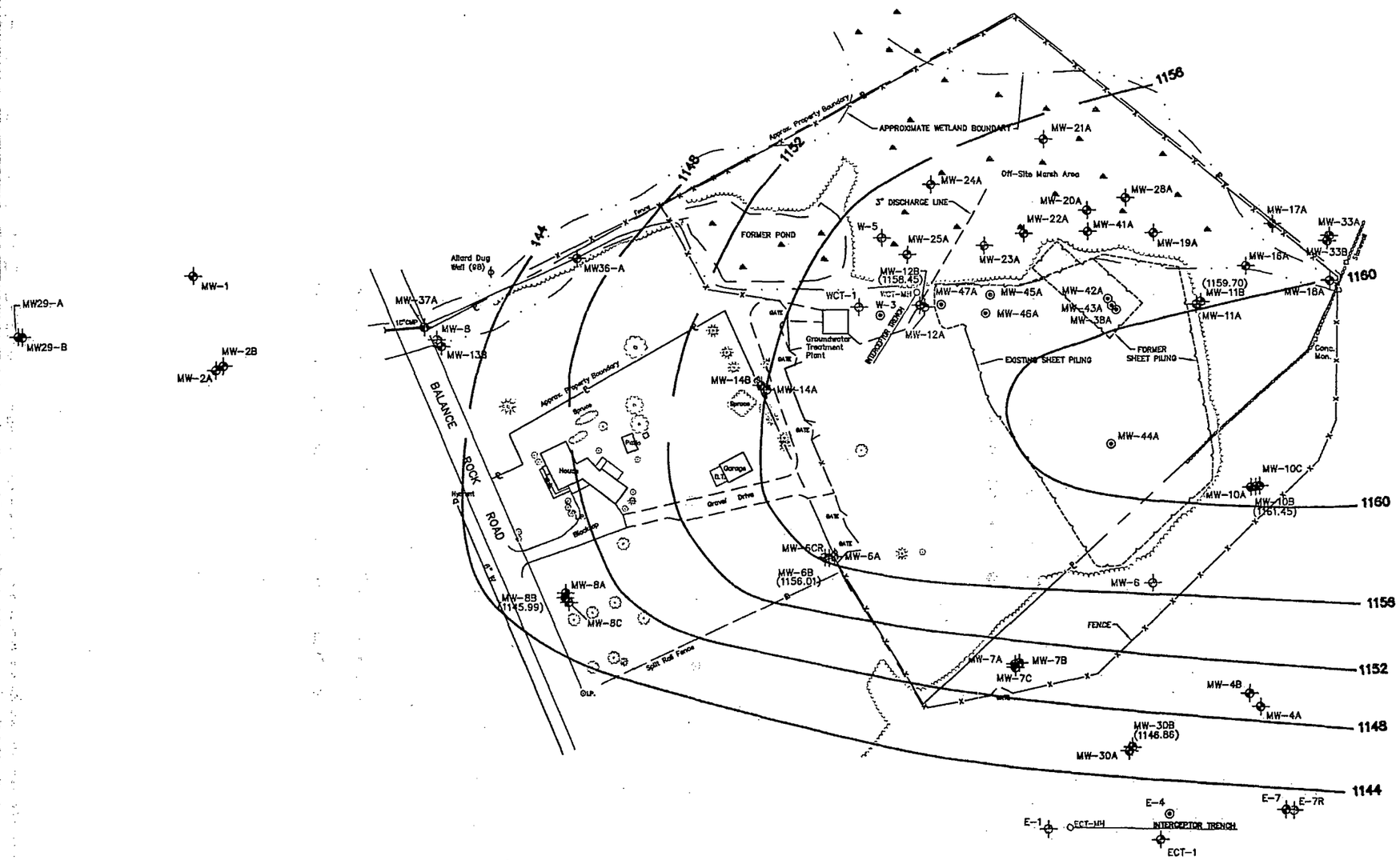
SPECTRA ENVIRONMENTAL GROUP, INC.
19 British American Blvd.
Latham, N.Y. 12110

F.T. ROSE DISPOSAL PIT SUPERFUND SITE

GROUNDWATER ELEVATION CONTOURS "A" ZONE – FALL 2008

LANESBOROUGH MASSACHUSETTS

PROJ. NO.: 04179	DATE: 2/6/09	SCALE: 1"=150'	DWG. NO.:04179002FALL08	FIGURE 2



LEGEND:

- MW-8A ⊕ MONITORING WELL
- E-7 ⊙ DECOMMISSIONED/FORMER MONITORING WELL LOCATION
- o COLLECTION TRENCH MANHOLE
- ⊕ SEMI-ANNUAL GROUNDWATER QUALITY MONITORING LOCATION
- ⊕ SEMI-ANNUAL GROUNDWATER ELEVATION MONITORING LOCATION
- 1120---- TOPOGRAPHIC ELEVATION CONTOUR IN FEET
- GROUNDWATER ELEVATION CONTOUR IN FEET (DASHED WHERE INFERRED)
- (1158.06) GROUNDWATER ELEVATION IN FEET

NOTES:

1. BASE MAP CREATED FROM BLASLAND, BOUCK AND LEE, INC. DRAWING DATED 6/24/04, AND SITE PLAN BY HILL ENGINEERS, ARCHITECTS AND PLANNERS, DATED 10/15/92. APPROXIMATE LIMITS OF WETLANDS FROM SITE PLAN BY HMM ASSOCIATES, DATED AUGUST, 1992.
2. GROUNDWATER QUALITY MONITORING IS ALSO PERFORMED ON A SEMI-ANNUAL BASIS AT THE COLLECTION TRENCH MANHOLES AND WITHIN THE GROUNDWATER TREATMENT PLANT.
3. GROUNDWATER ELEVATION DATA IS ALSO MONITORED AT THE MONITORING WELLS AND MANHOLES AS PART OF SEMI-ANNUAL SAMPLING AND ANALYSIS.
4. GROUNDWATER ELEVATION MEASUREMENTS WERE OBTAINED ON NOVEMBER 3, 2007.

0 150' 300'

GRAPHIC SCALE

SPECTRA ENVIRONMENTAL GROUP, INC.
19 British American Blvd.
Latham, N.Y. 12110

F.T. ROSE DISPOSAL PIT SUPERFUND SITE

GROUNDWATER ELEVATION CONTOURS "B" ZONE – FALL 2008

LANESBOROUGH MASSACHUSETTS

PROJ. NO.:	04179	DATE:	2/6/09	SCALE:	1"=150'	DWG. NO.:	04179003FALL08	FIGURE	3

MW-12A	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.000050)
Total PCBs Unfiltered	ND (0.000054)
Benzene	0.013
Trichloroethene	0.51 D
cis-1,2-Dichloroethene	1.1 D
Vinyl Chloride	0.14 D
1,2-Dichloroethane	0.0048 J
1,4-Dichlorobenzene	0.0038 J
Trans-1,2-Dichloroethene	0.0035 J
Tetrachloroethene	0.0024 J
1,2-Dichlorobenzene	0.0012 J
o-xylene	0.0008 J
Chlorobenzene	0.00065 J
1,1-Dichloroethene	0.0076 J
1,1,2-Trichloroethane	0.0014 J

W-5	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.000050)
Total PCBs UnFiltered	ND (0.000050)
Trichloroethene	0.00059 J
cis-1,2-Dichloroethene	0.0015 J

WCT-1	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.000050)
Total PCBs Unfiltered	ND (0.000050)
cis-1,2-Dichloroethene	0.0074
1,3-Dichlorobenzene	0.00047 J
1,4-Dichlorobenzene	0.0019 J
Trichloroethene	0.00033 J
Vinyl Chloride	0.0017 J
1,2-Dichlorobenzene	0.00021 J

WCT-MH	
Parameter	Result (PPM)
Total PCBs Filtered	0.0177
Total PCBs Unfiltered	0.0196
1,3-Dichlorobenzene	0.012 J
1,4-Dichlorobenzene	0.048 J
cis-1,2-Dichloroethene	2.0
Vinyl Chloride	0.025 J
Toluene	0.006 J
Trans-1,2-Dichloroethene	0.020 J
Benzene	0.0064 J
1,2-Dichlorobenzene	0.0068 J
Ethylbenzene	0.015 J
Chlorobenzene	0.0062 J

MW-8	
Parameter	Result (ppm)
Total PCBs Filtered	ND (0.000056)
Total PCBs Unfiltered	ND (0.000052)
Total VOCs	ND

TP-BETWEEN [FP-ROSE-DUP-1]		
Parameter	Result (PPM)	
Total PCBs Filtered	ND(0.000050)	[ND(0.000051)]
Total PCBs Unfiltered	ND(0.000050)	[ND(0.000050)]
1,1,2-Trichloroethane	0.00021 J	[0.00023 J]
cis-1,2-Dichloroethene	0.034	[0.034]

TP-OUT	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.00050)
Total PCBs Unfiltered	ND (0.00050)
cis-1,2-Dichloroethene	0.0072

E-1	
Parameter	Result (ppm)
Total PCBs Filtered	ND(0.000054)
Total PCBs Unfiltered	ND(0.000053)
Total VOCs	ND

ECT-MH	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.000050)
Total PCBs Unfiltered	ND (0.000052)
Trichloroethene	0.0012 J
Tetrachloroethene	0.00028 J
Acetone	0.0013 J

MW-6	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.000054)
Total PCBs Unfiltered	ND (0.000053)
Tetrachloroethene	0.0032 J
Trichloroethene	0.0088
cis-1,2-Dichloroethene	0.0014 J
1,3-Dichlorobenzene	0.00088 J
1,4-Dichlorobenzene	0.003 J
1,2-Dichlorobenzene	0.00029 J
Chlorobenzene	0.00022 J

E-7R	
Parameter	Result (PPM)
Total PCBs Filtered	ND (0.000050)
Total PCBs Unfiltered	ND (0.000050)
Total VOCs	ND

ECT-1 [FP-ROSE-DUP-2]		
Parameter	Result (PPM)	
Total PCBs Filtered	ND (0.000057)	[ND (0.000053)]
Total PCBs Unfiltered	ND (0.000050)	ND (0.000053)]
Total VOCs	ND [ND]	

LEGEND:

- MW-8A ⊕ MONITORING WELL
- E-7 ◉ DECOMMISSIONED/FORMER MONITORING WELL LOCATION
- ○ COLLECTION TRENCH MANHOLE
- ⊕ SEMI-ANNUAL GROUNDWATER QUALITY MONITORING LOCATION
- ⊕ SEMI-ANNUAL GROUNDWATER ELEVATION MONITORING LOCATION
- 1120 TOPOGRAPHIC ELEVATION CONTOUR IN FEET

NOTES:

1. BASE MAP CREATED FROM BLASLAND, BOUCK AND LEE, INC. DRAWING DATED 6/24/04, AND SITE PLAN BY HILL ENGINEERS, ARCHITECTS AND PLANNERS, DATED 10/15/92. APPROXIMATE LIMITS OF WETLANDS FROM SITE PLAN BY HMM ASSOCIATES, DATED AUGUST, 1992.
2. GROUNDWATER QUALITY MONITORING IS ALSO PERFORMED ON A SEMI-ANNUAL BASIS AT THE COLLECTION TRENCH MANHOLES AND WITHIN THE GROUNDWATER TREATMENT PLANT.
3. DATA QUALIFIERS:
   - J: INDICATES AN ESTIMATED VALUE LESS THAN THE PRACTICAL QUANTITATION LIMIT (PQL).
   - D: COMPOUND QUANTIFIED USING SECONDARY DILUTION.
   - ND: NOT DETECTED.
4. SHADED VALUES- VALUE EXCEEDS THE PERFORMANCE STANDARD.

0 150' 300'

GRAPHIC SCALE

SPECTRA ENVIRONMENTAL GROUP, INC.
19 British American Blvd.
Latham, N.Y. 12110

F.T. ROSE DISPOSAL PIT SUPERFUND SITE

SEMI-ANNUAL GROUNDWATER ANALYTICAL RESULTS

FALL 2008

LANESBOROUGH MASSACHUSETTS

PROJ. NO.:	04179	DATE:	2/6/09	SCALE:	1"=150'	DWG. NO.: 04179004SFALL08	FIGURE	4